# GeoMegA's \$82 Billion Rock ?

04/18/2014 | Danny Deadlock, Stockhouse TickerTrax

In 2014 we are following the progress of GeoMegA as they work to prove up commercial viability of new technology for the separation of rare earths (a process currently dominated by China). In addition to the technology, the company owns a large rare earth project in Quebec in which we are most interested in the "Magnetic Elements" contained within this rock.

Because this is a giant (and complex) industry, my **report this weekend is the 3rd in the Series.** You can bring yourself up to speed with the previous reports here:

http://www.stockhouse.com/opinion/ticker-trax/insights/2014/02/15/v-gma-37-cents-%E2%80%93ree-game-changer

http://www.stockhouse.com/media/tickertrax/TTraxFridayMar6gma2.pdf

GeoMegA (GMA.V 59 cents) - <u>www.ressourcesgeomega.ca</u>

#### INTRODUCTION

#### The Critical Importance of Magnetic Elements

Rare Earth Demand is already very high and supplies (dominated almost 90% by China) are forecast to remain tight for years.

Of the 17 rare earth elements, three in particular make up the "**Magnetic Elements**" - neodymium (Nd), praseodymium (Pr) and dysprosium (Dy)

As the world's largest country now seeks to "clean up their act" they will have no choice but to:

1) Spend more on green technologies

2) Shut down illegal rare earth mining and enforce pollution controls on rare earth processing plants (many of which are so old they may need to be shut down entirely)

**Green technologies** which contain rare earth (RE) Magnets are dominated by motors and generators within electric and hybrid vehicles, and wind farms.





Applications of RE Permanent Magnets



# With Respect to GeoMegA's new REE Processing Technology in Development

>> The U.S. GAO (Government Accountability Office) concluded that the United States lacks a domestic rare earth supply chain and offered the following assessment of the current defense rare earth supply:

• While rare earth ore deposits are geographically diverse, current capabilities to process rare earth metals into finished materials are limited mostly to Chinese sources.

• The United States previously performed all stages of the rare earth material supply chain, but now most rare earth materials' processing is performed in China, giving it a dominant position that could affect worldwide supply and prices.

• Based on industry estimates, rebuilding a U.S. rare earth supply chain may take up to 15 years.

>> There is a growing gap between the United States and China with regard to the academic study of rare earth elements. China employs thousands of scientists in both disciplines. The only U.S. public university with a rare earths specialty is the Colorado School of Mines

>> Develop Partnerships with Allies to Diversify the Supply Source Congress may encourage DOD to pursue joint ventures with other nations, as many other nations are seeking alternatives to a near total dependence on rare earths from China. These partnerships may take place at any stage of the supply chain. It is critical for DOD to consider the implications of sourcing used by these partner nations. For example, if DOD relies on a partner nation for rare earth metals, and that nation procures their oxides from China, this partnership may not provide the requisite security of supply.

# GeoMegA is one of the ONLY known companies with an advanced technology in development for processing (purifying) rare earths using NO organic solvents.

The global demand for technology continues to grow and without rare earths none of it is possible. MolyCorp in California is helping to reduce U.S. dependency and mitigate the risk to the U.S. military but still the world is dependent upon China for at least 90% of our rare earths (and I believe 100% of the Dysprosium). Lynas has a new and very controversial rare earth processing plant in Malaysia but it is sourcing radioactive material from Australia.

As China now escalates their military spending and attacks this massive pollution problem head on, we have to be concerned with the impact this will have on rare earth supply and pricing in the years ahead. Their first priority will be China and if the supply of magnetic elements hits a choke point or bottleneck, then every country is going to suffer.

#### \$3 MILLION FINANCING CLOSED

This week GMA closed their \$3 million financing placed primarily with high net worth and institutional investors from the United States and Europe. This paper was priced at 60 and 70 cents.

The CEO has indicated that he has no desire in the foreseeable future to raise more money by issuing shares. Quebec is great for supporting their mining companies and investing in new technology. If everything goes well and GMA continues to make positive progress with their rare earth separation technology, then we may see funds become available from the Province of Quebec.

Now that the financing is closed we will see more important news coming out on tech development, resource update, and pre-feasibility (economics). This will unfold between now and summer.

# Putting GeoMegA's "Potential" into Perspective

#### PREFACE

The rock values I am about to show on GeoMegA's REE project are so large **(\$82 Billion +)** that it concerns me this update will come across as promotional. That value does not originate by pulling a random number out of the air - it is based on GeoMegA's 2011 resource study and current REE prices.

Unlike grassroots exploration projects that carry drilling risk, GeoMegA already has a VERY large proven resource based upon > 30,000 metres of drilling. They were an early leader in the Canadian rare earth space and unlike many other juniors, they stuck with it.

But over the past two years investors lost sight of how ridiculously valuable this deposit could become. In particular because "Super Magnets" are being used in almost everything tech and in the years ahead the world is expected to face a shortage of Dysprosium and Neodymium.

The image below is a Toyota Prius engine but this is typical of all hybrid or electric engines. As I discussed in my previous report on Dysprosium, these super magnets are used in everything from smart phones and computers to fighter jets and missiles.

Dy



Stock brokers and analysts have ignored GMA because they have been drowning in resource stock losses for the

past three years and institutional (fund) managers haven't paid attention because most could care less about these small resource exploration companies. In the interim, a VERY valuable resource may be right under their nose.

Unlike diamond and gold mines which produce "discretionary" commodities as an investment, **Dysprosium** and Neodymium are critical elements driven by "necessity". And when China controls 95% of the world's supply, governments and manufactures everywhere worry. And outside of China it appears that GeoMegA's Montviel project may be one of the richest Dysprosium and Neodymium deposits in the world.

**Neodymium** is used as a component in the alloys used to make high-strength neodymium magnets – powerful permanent magnets that are widely used in microphones, loudspeakers, headphones, and computer hard disks, where low magnet mass or volume, or strong magnetic fields are required. Larger neodymium magnets are used in high power versus weight electric motors and generators (aircraft and wind turbines) -[Wikipedia excerpt]



Neodymium is not rare like the Dysprosium. It is as common as

cobalt, nickel or copper but you don't go out and simply mine Neodymium. It needs to form a part of the overall REE process – similar to having very valuable "by-products".

It needs to be part and parcel of the entire mine plan simply because the capital costs of putting up a REE mine are like iron ore – VERY expensive (typically in the range of \$1 Billion).

That is also why GeoMegA's new separation technology is extremely important to the industry. If they can successfully separate the REE's on a commercial (mining) scale, they not only eliminate a huge amount of environmental concern, but (in theory) should bring the capital and operating costs of processing REE's way down. It would become the industries "Magic Bullet".

*The intention of this report is to put the GeoMegA Rare Earth project into some type of perspective in relation to Friday's closing market cap of \$30 million.* 

You will see a reference below to the giant Diavik Diamond Mine owned by Rio Tinto and Dominion Diamond (previously Harry Winston and Aber). I am NOT saying this is the next Dia Met, Aber, or Diamond Fields who watched their stocks run from pennies to over \$30.

I am saying however, that it is not uncommon for large institutional fund managers and other large mining companies to completely overlook how grossly undervalued some of these discoveries can be. Under the right circumstances this creates opportunity for astute retail investors.

**Infrastructure & Location:** In addition to the "size and value" of this resource when comparing it to other remote mining projects, it is very important to note that this is located in a rural region of SW Quebec, accessible through a network of logging roads and highways, close to hydropower, close to labour, accessible year round, and within 50km of a rail line.

**Carbonatite Deposit**: Montviel is a 32 km2 carbonatite complex. Carbonatites typically contain a larger concentration of REE's than any other rock type and they host the majority of the world's most prolific rare earth deposits and producing REE mines. GeoMegA believes that the Montviel carbonatite is one of the largest in North America.

## A Few Things to Keep in Mind Before we Discuss the \$82 Billion

I do not like the use of "gross metal values" in resource projects. However, because rare earth projects are difficult to interpret, this helps us better understand future "potential".

1) GMA at 60 cents is valued at \$30 Million. Unlike my previous reports where the focus was their REE separation technology and we "ignored" their Montviel REE project, this report will "ignore" the technology side and instead focus solely on the potential value of Montviel.

After completing 33,000 metres of drilling, GMA published a 43-101 (meaning it was stock exchange compliant) resource report in 2011. Based on those 2011 numbers and the current value of REE's (as you will see below), the **"Gross Metal Value"** of that deposit is an incredible \$82 Billion.

# That \$82 Billion (market value of the REE's contained within the rock if fully extracted and sold) is contained within a footprint (Core Zone) measuring ONLY: 650m x 900m x 750m Deep.

2) Since the time of that 43-101 report, the company has done extensive drilling within the core zone and defined a **Heavy Rare Earths (2<sup>nd</sup> enrichment) Zone that is 350m x 20m x 230m and still open at Depth.** Those heavy rare earths (HREE) include highly valuable Dysprosium (Dy) and Neodymium (Nd). These were present when the 43-101 was published in 2011 but this is a much richer zone.



Ramp access mining with paste backfill minimizes environmental impact. All infrastructures on site, energy supplied by electric power line.



3) It may seem like I would be comparing apples to oranges by mentioning **Diavik**, but this is more like comparing Apples to Pears.

If you consider the enormous gross metal value of the Montviel rock **within a land footprint of only 650m x 900m x 750m** (and in a rural region of Quebec), compare that to the Diavik diamond mine that is one of the most remote mines on the planet yet valued in the Billions.



- > 220km south of the Arctic Circle
- > viewed as a mine engineering marvel
- > access over several lakes via ice roads
- > three kimberlite pipes have a footprint of 10 sq.km
- > initial capital cost around \$1.3 Billion
- > another \$800 million invested in 2010 to go underground
- > open pits from 2003 to 2012 with full underground mining by Sept 2012

**Diavik was estimated to contain approx. 100 Million carats of diamonds** with an estimated production life of 16 to 22 years (10 years completed to date).

Average value per carat is estimated near \$140. In theory that would have made their 10 sq.km of rock worth \$14 Billion - Keep this in mind when you see the \$82 Billion "rock value" of GeoMegA's Montviel deposit (calculated below).

In 1991 Charles Fipke made the first commercial diamond discovery in Canada (Ekati) through his Dia Met Minerals. Over a couple years Dia Met ran from 40 cents to over \$60 and made millionaires out of hundreds of retail investors and brokers.

Then in 1992 Aber Resources & Kennecott Joint Ventured to form Diavik. Diamond pipes were discovered in 1994 and 1995 and by late 2000 (along with Rio Tinto) construction began on the \$1.3 Billion Diavik mine. Production began in January 2003.

Aber Resources was a \$3 stock in 1993 with a high market cap even before they made their big diamond discovery. Four years later the stock hit \$28 per share.

The discoveries by Dia Met and Aber created the largest staking rush in Canadian history and one of the largest in the world. All that because companies like Ekati and Diavik were sitting on rock worth \$14 to \$20 Billion.



The incredible wealth created by the diamond rush of the early 1990's was similar to a "gold" rush in that investors were overtaken with emotion. People were driven by greed and hoping they would invest in the next diamond mine.

When the smoke settled, hundreds of companies burned through billions of dollars and then disappeared. Canada was left with ONLY

three world class diamond mines - Snap Lake, Ekati and Diavik.

Diavik was sitting on an estimated \$14 Billion in diamonds. YET GeoMegA is sitting on rock that (in a perfect mining and sales scenario) could produce over \$80 Billion in Rare Earths! And the company is currently valued at \$30 Million?

This is because most investors don't understand the rare earth industry. And yet we have VERY solid proof that not only is there strong demand for many rare earths but Dysprosium (Dy) and Neodymium (Nd) are critical to the economy of EVERY country in the world.

I have yet to see where the world will not move forward if we take away diamonds. But try taking away Dy and Nd OR drive the price up like we saw in 2010 and 2011 when China tried to control the world market. The shortage (or sky-high price) of Neodymium Magnets would have a very negative effect on technology development and manufacturing costs.

While many investors focus on gold, they are missing the bigger resource picture associated with a world driven by technology.

If Diavik and Dia Met became billion dollar companies, what will happen in the years to come if China decides to take control of the Dy or Nd market again or cannot supply enough to meet the demands of global manufactures? Will a company like GeoMegA "still" be worth only \$30 million?

#### VALUATION PRESENTATION

Occasionally you will see an overly promotional junior resource company talk about the "gross metal value" of their exploration project. These numbers often mean very little because so many variables come into play like capital and operating costs.

As an example - a company could talk of having a 5 million ounce gold deposit which in most cases would be very large. But 5 million gold ounces in the middle of the Yukon may never be economic while a 1 million ounce gold deposit with good grades and access to good infrastructure may be a cash cow.

If a junior mining company had an economic 5 million ounce gold project, it could be valued at two hundred million dollars even before a mine is built.

At \$1250 gold, 5 million ounces has a "gross" metal value of \$6.25 Billion. However at \$1250 gold, the majority of gold projects are barely breaking even. That is also why junior takeovers this past year have occurred in the range of \$30 to \$40 per gold ounce.

It is based upon that current "peer" valuation that 5 million (economic) gold ounces might be worth \$200 million – while the gross metal value is closer to \$6 Billion. In the current gold environment we might say fair value is only 3% to 5% of that gross metal value.

The above is a VERY generic interpretation but you get the idea.

#### How This Relates to GeoMegA

Fortunately GeoMegA is not one of these companies making statements about how valuable their rare earth (REE) deposit "may" be. I have also not made reference to this in any reports to date.

But as investors we need to have a general idea what this project is worth or what it "could" be worth in the future. Because 95% of the world's rare earths are produced in China and typically controlled by the state, it would be impossible to use those companies for comparables.

And outside China there are not enough producing public mines to use them as a fair valuation benchmark. The best case scenario is to use a preliminary economic assessment (PEA) on the Montviel deposit but we will not have that available until May or June.

The PEA will provide capital and operating costs along with an estimated rate of return under a mining scenario. The PEA is being prepared by a world class engineering firm so that will carry the most weight.

In the interim however, **we can estimate what the rare earths are worth in-situ (in the ground).** That is a crude way of arriving at an approximate valuation but as I discussed above with the diamond and gold companies, it can allow us to "guestimate" until the PEA is made available.

#### ARRIVING AT THE \$82 BILLION

The Montviel total carbonatite intrusion is 32 square kilometres including a 3 sq.km Core Zone The Core Zone is: Vertical Depth of 750m x 650m Width x 900m Length Of the 17 rare earth elements, these four are the most valuable on a dollar per kilogram basis. As already discussed, Neodymium and Dysprosium are critical to the manufacturing of super magnets. GeoMegA has both in very large quantity.

As of April, the following are rare earth metal prices being quoted out of China. This is based on 99% purity with the buyer responsible for shipping. These quotes are provided by Metal-Pages.com who are a leading industry source of metals information.



I have no other quotation details because a subscription to their service is several thousand dollars per year.

# Praseodymium (Pr) \$150/kg Neodymium (Nd) \$85/kg Europium (Eu) \$1,250/kg Dysprosium (Dy) \$620/kg

In the November 2011 **43-101 resource estimate** (which should be updated by April - based on drilling since 2011) they released the following reserve estimates:

**NOTE** that **these numbers represent Million Kilograms "in-situ". That is VERY important to understand**. In-Situ means the numbers are intended for illustrative purposes only. No mining scenario, milling, or metallurgical recovery has been estimated or applied to these values, and therefore **they do not have demonstrated economic viability**.

\* Also Note that I **risked the inferred numbers** and only include 40% of the value in my Total calculation (that is because inferred resources require more drilling to move them into an Indicated classification):

## CONCEPTUAL IN-SITU VALUATION

1) Nd2O3 (Neodymium) – Indicated 446 - Inferred 160 \* - Total 510 million Kg 510M kg X \$85/kg = \$43.3 Billion

2) Pr2O3 (Praseodymium) – Indicated 139 - Inferred 50 \* - Total 159 million Kg 159M kg X \$150/kg = \$23.9 Billion 3) Eu2O3 (Europium) – Indicated 9 - Inferred 3 \* - Total 10 million Kg 10M kg X \$1,250/kg = \$12.5 Billion

4) Dy2O3 (**Dysprosium**)– Indicated 4 - Inferred 2 \* - Total 4 million Kg \*\* 4M kg X \$620/kg = **\$2.5 Billion** 

\*\* The Dysprosium Kg and subsequent Value could increase dramatically because drilling this past year has hit significant tonnage. This 4M kg is based upon the 2011 43-101 Only.

TOTAL gross metal value based upon the 2011 43-101: \$82 Billion

This is 13 TIMES the gross metal value of an economic 5 million ounce gold deposit

Using the same 3% fair value as we did with gold (simply for fun), you arrive at \$82 Billion X 3% = \$2.5 Billion Versus the current market cap of GMA at \$30 million

Obviously we cannot say GeoMegA is worth \$2.5 Billion but even **using 1/10th of 1% of that \$82 Billion** we arrive at **\$82 Million or almost \$2 per share**.

So without seeing the PEA, if we want to try and put into perspective a "minimum" price target we would be interested in based upon the "in-situ" value of that rock, we may want to use \$2 per share.

If the prototype separation testing proves successful and that is then incorporated into a PEA that demonstrates strong economic viability, then I believe that \$2 should only be the tip of the iceberg over the next year or two. Firing on all cylinders this project should be worth multiples of that.

If gold and diamond mines command the valuations that they do, then in a world driven by technology I see no reason why an economic rare earth deposit sitting in Canada (heavily weighted to Dysprosium and Neodymium) should not command the same type of valuations we have seen in the past.

We now need to wait and see results of more rare earth separation testing (expected in the next week or two), then the updated 43-101 (May), and then the PEA (assuming late May or June). In the interim the above "rock values" will give us something to benchmark against.

## WORLD TRADE ORGANIZATION (WTO) RULING ON CHINA & RARE EARTHS

The last week of March the WTO ruled that China's cap on exports of rare earth elements (going back to 2010) broke global trade rules. The countries that launched the complaint (lead by the U.S) said it was a victory but China simply criticized the ruling.

The state-run People's Daily says the WTO's decision shows "regulatory discrimination" by the West. The paper questions the rationality of the ruling and points out that the US and Europe are also imposing export restriction policies.

# "Many Western countries stopped the extraction to protect their environment, turning to other countries for purchases. China has been supplying 90% of cheap rare earths to the whole world."

Beijing News urges the Chinese authorities to regulate the "chaotic" rare earth industry, which has been causing environmental pollution. "Once the industry is cleaned up and regulated, prices of exports will reach a reasonable level... it will no longer be possible for the US, EU and Japan to import our rare earth resources at dirt cheap prices."

"Controlling exports is not enough, more effort should be put in to management of the resources. There is the situation of over-extraction in China, so if we could better manage the extraction and protect the resources, we could still comply with the WTO rules, and not affect reserves of the resources."

This WTO ruling and criticism comes at the same time China is buried in pollution and telling their people they will need to suffer the consequences of change short term but in the process they will make major improvements in their pollution problems.

**China's "war on pollution" will mean greater usage of green technologies (including electric vehicles) and this will place greater demand on the magnetic rare elements**. The pollution crackdown will also impact rare earth (REE) mines and processing.

I personally believe China will use this WTO ruling combined with their own war on pollution to either impose a significant environmental surcharge on REE exports or justify REE restrictions / quotas based on the fact they need them for their own country and mine supply is now being restricted.

China has a very valid point - the processing of REE's is very chemically intensive and it causes huge damage to their environment. China didn't care about this in the past and was happy to rake in the money. Now they have every reason to care. **The rest of the world was happy to have China provide rare earths and keep the environmental damage on Chinese soil.** 

With this WTO criticism and their own war on pollution, I believe we are going to see major changes within the REE industry during 2014 and 2015 - and they will not be positive for the rest of the world.

If GeoMegA's new "chemical free" processing technology is a commercial success, it will be worth a LOT of money. If the process fails, China will continue to dictate supply and price for the next decade.

#### LEADING INDICATOR

#### http://www.digitaljournal.com/pr/1818324

The above link points to news that is very relevant to GMA and would have gone unnoticed by most investors - but for us it is very important. It is a strong industry indicator of high demand.

Stanford Magnets of California (the leading U.S. magnet manufacturer who have specialized in neodymium magnets since the 1980's) launched on Friday a new service called "Blanket Order" designed to "moderate the effects of price fluctuations in the current rare earth market."

From their news release (March 28, 2014):

"The price of rare earths has taken an unanticipated sharp increase in the last month, with future increases yet to come. Rare earth metals have come to be essential in every aspect of hi-technology ranging from lifesaving MRI scans, to green technology to small and powerful speakers, all are heavily dependent on rare earth. Such an important ingredient is almost virtually all supplied by China, which controls 95% of world production."

"A strong industry relies on a steadiness between supply and demand. The demand is high. The supply is controlled by China. We believe that stockpiling is the way forward for now, and so we have introduced this 'Blanket Order Service' in an effort to lessen the blow felt by our customers".

"When you have been in the manufacturing business for as long as us, you learn a thing of two about the unpredictable prices and the value of stockpiling. Magnets are an essential part of every aspect of our lives, and we should not have to wait for a political decision to stabilize the prices."

#### April 17th from Industry Leading Metal-Pages.com

LONDON: Industry sources are warning that prices of light rare earths, particularly cerium and lanthanum, could actually start rising in Europe as Chinese producers hit export quotas.

## CONTACT INFORMATION:

## GeoMegA CEO - Simon Britt - sbritt@ressourcesgeomega.ca

Note: Mr. Britt tries to handle investor and shareholder inquiries personally. However, please keep in mind that he also has a business to run and the more demands placed on his time regarding the "trading activity" of GeoMegA stock, the more time that is taken away from running the business. All shareholders would appreciate if this contact information was not abused.

Disclosure: Danny Deadlock owns 80,000 shares of GeoMegA purchased in January and February 2014.