



Rockstone

Research

January 7, 2016

Research #14

Rare Earth Elements (REEs)



Q&A Session About My Most Recent Article *“Shedding Light onto the Rare Earth Playing Field”*

Following my latest article [“Shedding Light onto the REE Playing Field”](#), there were some questions that my newsletter subscribers asked me to address (highlighted in blue below). If you have any more questions, please send to info@rockstone-research.com. I have attempted to be a positive force in this sector by, as much as possible, levelling the playing field by explaining the rare earth element (REE) space and its particularities with a series of focused articles. As in all commodity spaces, some projects and management teams are good, and some projects and management teams are not. Through Rockstone Research, I offer insight on project and company aspects I feel investors should pay attention to, and further, offer my opinion on the project(s) I feel are best positioned for success.

Company Details

Commerce Resources Corp.

#1450 - 789 West Pender Street

Vancouver, BC, Canada V6C 1H2

Phone: +1 604 484 2700

Email: cgrove@commerceresources.com

www.commerceresources.com

Shares Issued & Outstanding: 234.4 million



↖ Chart Canada (TSX.V)

Canadian Symbol (TSX.V): CCE

Current Price: \$0.08 CAD (Jan. 6, 2016)

Market Capitalization: \$19 million CAD



↖ Chart Germany (Tradegate)

German Symbol / WKN: D7H / A0J2Q3

Current Price: €0.053 EUR (Jan. 6, 2016)

Market Capitalization: €12 million EUR

Technical Analysis:

Since 2001: <http://schrts.co/wR62L5>

Since 11/2013: <http://schrts.co/kAtslu>



In the REE space, I have been praising Commerce Resources Corp.'s Ashram Project as my top pick from very early on, before I owned shares and after I owned shares, and the reason is simple – it's because I have done my due diligence, compared Ashram among its peers, and am comfortable with my investment. Many of the questions posed are directed exclusively on Commerce's Ashram Project so I would like to take the opportunity to address some of these from my perspective and opinion.

A lot of people are discussing Commerce Resources Corp. and its Ashram Project but the number one question is always regarding its remoteness. Do you think that Ashram's remoteness is really a problem for Commerce going forward?

Nature does not always put great deposits next to a highway. In actual fact, it is vastly more "rare" for a great deposit to be located with good infrastructure already built. As I said in my last [article](#): "*Remoteness is a very relative term and a good project can overcome remoteness. There are examples of this in nearly every commodity.*" A great example of this is Voisey's Bay Ni-Cu-Co mine in north-eastern Labrador, Raglan Mine in northern Quebec, and the numerous base and precious metal mines of past from the Canadian high north, as well as Diavik and Ekati.

Also keep in mind that many mining districts close to existing infrastructure are mature, and as such, exploration is constantly pushing to find deposits at deeper depths, and further outside the areas of easy access. A positive to this is that there is less population affected by the mine and therefore, potential for fewer social issues to arise.

The flip side to all of this is that a deposit found in a remote location must be of significance so that it can overcome this remoteness and justify

the emplacement of the required infrastructure. With respect to Ashram, it is enriched in the magnet feed REEs (most stable markets and prices), is open-pit with an industry low strip-ratio (0.2:1), simple mineralogy, simple processing, good grade, located in an area where all land claims are settled (Nunavik Territory), and also located within one of the top jurisdictions globally to develop a mine (Quebec). Coupled all together, these benefits easily outweigh those of its peers which are situated closer to infrastructure.

Items such as roads, air strips and camps are commonly required in the mining space – even for not so remote mines. Basically, the only major infrastructure which Commerce requires is a haul road stretching from the deposit to the coast for transport of concentrate and supplies. This is the project's single biggest challenge in my opinion but a simple one to understand and one that is not insurmountable by any means.

For additional discussion on infrastructure, with further Ashram specifics, please refer to my prior article entitled "[REE Deposits: A Simple Means of Comparative Evaluation](#)".

Can you please explain Ashram's sustaining capital costs as noted in the 2012 PEA? Why are the sustaining capital costs so low? Is anything missing in this figure as the project seems so remote?

The Ashram PEA estimates \$1.4 million/year (i.e. total/LoM of \$35 million) in sustaining CAPEX. How can it be so low was the question? It is because Ashram is a simple open-pit operation using conventional processing that does not require a lot of maintenance. In contrast, heap leach operations, for example, may have abnormally high sustaining CAPEX. Only looking at initial CAPEX may give an incorrect and potentially misleading picture as to the overall CAPEX intensity of the project as a

whole; initial CAPEX and sustaining CAPEX should always be looked at in conjunction with one another.

For additional discussion on initial and sustaining CAPEX, using several REE project examples, please refer to my prior article entitled "[REE Deposits: A Simple Means of Comparative Evaluation](#)".

Is it true that Ashram's initial CAPEX is among the highest in REE space?

Contrary to some recent comments, Ashram's initial CAPEX is in the middle of the pack, and not among the highest in the space. When comparing CAPEX of projects in the REE space, one should include all relevant REE projects as I did in April 2014; [see table here](#)). For instance, 5 REE deposits (Zandkopsdrift, Kvanefjeld, Nolans Bore, Nechalacho, B Zone) have initial CAPEX exceeding a billion dollars and thus are higher than Ashram's \$728 million. If initial and sustaining CAPEX are used, then you would see that 7 REE deposits have a higher CAPEX when compared to Ashram. A few of these projects have had updated studies released since April 2014; however, the conclusion that Ashram's initial CAPEX is in the middle of the pack remains firm.

In your recent article you seem not to care about CAPEX, which you say is in the "middle of the pack". You seem to say that OPEX is all that matters for a REE project in order to have a chance to advance.

As per the response above, Ashram's CAPEX is in the middle of the pack. A low OPEX is a requirement for a profitable long-term operation, but it's not the only criteria required to get a project into operation. Here is a quote from my last [article](#) (page 4) that was missed by some:

"The bottom-line is, the lower OPEX companies with good, balanced distributions anchored by the magnet feed REEs (most notably Nd and Pr) will have the greatest chance of success in this complicated space..."



Certainly, there are other factors to consider, such as capital expenditure (CAPEX), tonnage, and jurisdiction; however, it all starts with and stops with OPEX."

For such reasons, I would recommend to screen all projects first for lowest OPEX and then work from there by incorporating other criteria to find the best overall. This is a simple means in which to start narrowing the field of projects to the one you feel is most worthy of your investment. For me, this is the Ashram Project.

I draw a comparison here to the oil space. It is the lower cost producers that have the greatest ability to survive in such a low-price environment. There are of course other factors such as debt levels, however, lower OPEX means more manoeuvrability and potential to service debt.

I have the feeling that Ashram's low OPEX assumption is significantly underestimating the costs of the hydrometallurgy stage.

Ashram's "low OPEX assumption" was derived by a Qualified Person under NI43-101 (i.e. independent third party) and not by the company. All Canadian listed companies must abide by NI43-101, which is widely accepted to be the most stringent mineral resource industry regulation globally. Therefore, Commerce had no control over the derivation of that number. At the end of the day, it remains projected to be "low" or "lowest in the space" as it's based on a simple process flowsheet in the PEA, processing the most commonly processed REE bearing minerals. Certainly, it's much simpler than most, if not all, of Commerce's peers.

Ashram's hydromet OPEX will be updated when their PFS is complete. However, the comparison that can be done today is simple; Ashram has among the highest mineral concentrate grades in the REE space for a project in development, with only Peak Resources' Ngualla Project

comparable to my knowledge, meaning that Ashram's OPEX for the hydromet stage (in which the mineral concentrate is processed) would be among the lowest in the space. There is simply less gangue material to process in the hydromet stage. Less waste material to process means less processing cost.

There are estimates that Medallion's monazite sand can be cracked for only \$4/kg. And their product will be a purer mineral concentrate with less deleterious impurities.

Medallion has no economics out on their process that I am aware of, so there is no basis to pull an OPEX number from unless it's from another beach sand operation, which I doubt would have readily available numbers. In Ashram's PEA (2012, not 2015 which only included amended disclosure), a 10% TREO mineral concentrate was used, but since then Commerce produced a 48% TREO mineral concentrate, which is equivalent in grade to Medallion's feed according to their website. So, by any comparison, it is logical to assume that Commerce's hydromet costs could be equivalent to Medallion's. Again, it all comes down to the fundamental need to produce a high-grade mineral concentrate as this is what allows for lower OPEX downstream.

What has happened to the hydrometallurgical flowsheet since the PEA? Why are REE companies not building one hydromet REE extraction plant together to save costs?

The PEA was completed in 2012 and the company has had 10 separate metallurgical news releases since this time, all with new and significant metallurgical improvements. Over the 3.5 years since the PEAs release, the work has culminated in a more than quadrupling of their mineral concentrate grade (10% TREO in the 2012 PEA to 46-48% TREO in 2015).

Secondly, the mineral concentrates

of essentially every junior are **only suitable for a custom hydromet plant** due to their differing quantity and number of impurities – gangue material. Unless they are producing >50% TREO mineral concentrates of bastnaesite, monazite, or xenotime, they are all needing custom hydromet plants to crack their mineral concentrates. This is the main reason why we don't see any serious push in the market for a joint facility that would accept different kinds of mineral concentrate feedstocks.

Have any numbers been released on the economics for magnetic separation? Are these costs in line with other monazite hard rock deposits that use this process?

Commerce has not released economics on its magnetic separation process as it's not part of their PEA. However, unlike many other processes, magnetic separation has no real consumables so it is a low-cost process.

Do you think that Ashram's 95% hydrometallurgical recovery rate is realistic? It appears very optimistic compared to its peers, especially considering Ashram cannot optimize hydrometallurgical recoveries for all three minerals (monazite, xenotime, and bastnaesite).

The 95% number is not unrealistic. One reasoning is that Commerce's hydrometallurgical solution, with the REEs in it, will be **very low** in impurities compared to other projects. This is a direct result of the high grade mineral concentrate feed (i.e. very little gangue material).

The later sentence does not make sense and here is why: The REE bearing minerals cease to exist when digested in acid in the first stage of hydromet processing, so there is no such thing as separate optimization in the hydrometallurgical stage for monazite, bastnaesite, and xenotime. They will all dissolve in their entirety with the REEs entering solution as a mixture.



Commerce has not produced a mineral concentrate at the pilot plant level that is suitable for conventional REE leaching plants. Management talks much about its 46% TREO mineral concentrate; however, there are other REE development companies that have produced chemical concentrates, or even partially separated oxides, at the lab and/or pilot scale. Why has Commerce not produced similar products yet.

It is incorrect to assume there is a common hydrometallurgical flowsheet in the junior space to go from a mineral concentrate to a mixed chemical concentrate (i.e. mixed REC). They are all unique flowsheets because the input is unique to each project.

These comments reflect a lack of understanding on the fundamentals of creating a mineral concentrate and I urge any potential investor to take note of that critical processing aspect. In short, REE junior companies almost always produce final products too early and do it with **unrepresentative material** using **uneconomic processes** and therefore produce an **unrepresentative sample/result** (good use of cash, right?). Hence, such products are pointless as anyone can make the end-product if economics were not a factor. In other words, **making a product is easy, but it is making it economically that is overlooked by most juniors.**

There are numerous REE juniors that fell into this promotional trap with products produced with now outdated, and entirely uneconomic flowsheets. The most practical approach to achieving an economic process in the REE space is to create a high-grade mineral concentrate as feedstock to the hydrometallurgical facility, where most processing cost is incurred. This is fundamental to success. Now that Commerce has developed a practical and low-cost process to upgrade the Ashram ore to a very high-grade mineral concentrate, they are proceeding with the downstream processing as their recent press releases indicate.

There is also the notion of understanding what product should be targeted; however, this is perhaps a discussion for later.

Does Commerce assign a value to ytterbium and lutetium? Should they?

Commerce has not and I don't expect them to assign a value to both these elements unless they have a reasonable chance of offtake or sale into the market. It is possible there is added value from ytterbium and lutetium; however, the 2012 PEA assigned a zero value to both in order to be conservative. I think this is the most realistic approach and something that a potential investor should take note of. Companies that assign values to the REEs with opaque and niche markets (Ho, Er, Tm, Yb, Lu) should have a valid reason to do so, such as that noted above.

Lynas announced in its latest quarterly activities report to be working on eliminating some bottlenecks in its hydromet plant, namely sulfuric acid leaching of monazite. Is this something similar to what Ashram will be facing in future if going into production?

In terms of an answer here, it is vitally important to understand the importance and variance with respect to gangue material. Gangue material equals unwanted impurities, some far more difficult to deal with than others. Lynas (Mount Weld CLD) and Ashram have markedly different gangue in their mineral concentrates so, although Ashram will likely use a sulphuric acid digestion, the hydrometallurgical processes are not overly comparable.

Also, to my understanding, the main reason for Lynas' bottlenecking problem described is because the plant design was not modular and they are using one giant kiln to hit a massive production target. So when that kiln does down, so does their entire production line.

The PEA stated that around \$20M is needed to complete the feasibility study. Some \$6M was spent through July and Commerce recently raised \$1.6M. This means that \$10M are still needed to get raised over the next years which translates into a massive shareholder dilution.

This statement is incorrect. The PEA was completed in 2012 and the math above doesn't take into account the funds raised since that time, which stands at \$13.1 million CAD as of today. In terms of attractive options for raising the needed capital to complete the PFS, and then the BFS, please see the following outline of standard financing styles that would not be dilutive for the shareholders. As well, please see the following outline of where an economically robust company might find itself with regards to available construction financing once it has completed an economically robust BFS.

Project Level Investment

A project level investment (PLI) is where the public company takes in all, or most, of the capital required for the completion of whatever economic reports are outstanding, with the intent being that the final Bankable Feasibility study (BFS) will show positive economics so that the company can then secure a debt facility to build the project.

PLIs are usually done along 2 lines: 1) a percentage sale of future offtake, or 2) a percentage sale of the actual project.

However, both styles of project level investments do not typically have new equity as a component. These investments then are typically non-dilutive for the public company!

Examples of these 2 types of PLIs are: 1) the deal between Mitsubishi Corp. and Copper Mountain Mining Corp., and 2) the deal between Posco and Fortune Minerals Ltd. for its Mount Klappan met coal project.



Mining Finance

A public company that has completed a BFS may be able to secure the capital needed for the capital expenditure of their mineral project, if the economics in the BFS are robust enough. Just completing a BFS is not the determining factor here, and there are many examples of companies with BFS on their projects that do not have good enough economics to secure a debt facility from any financial institution.

As the markets have changed over the last 5 years, financial institutions have arguably become less risk tolerant. It could be argued that any project with less than a 25% IRR and an NPV less than their capital expenditures, is not likely to be able to find a willing financial institution to bankroll their construction.

It should first be noted that the PEA for Commerce was based on a very conservative price deck for the REEs at the time of its release in May 2012, and the economics were calculated, as was common at that time, pre-tax, and so the \$2.3 billion NPV and 44% IRR would not necessarily be the same today.

However, any company that has such economics – NPV that is >300% over their CAPEX, and with an IRR of >40% – would likely find a willing financial institution to bankroll their project.

Suggesting that any company with such economics would need to raise either the funds needed to complete their BFS, and following to build their project through the issuance of new equity is not a realistic concern.

Why is Commerce's management not buying shares? Why is its insider ownership so low while other companies have much higher insider ownerships? Don't you think that Commerce's low insider holdings are a clear red flag?

Insider buying is somewhat of an easy way to get investors excited, so

it is sometimes used as a marketing scheme in order to stimulate investor's buying and give them confidence, especially when those companies can't give investors any other reasons to buy its stock. I don't think it's that uncommon that juniors' insider ownerships are not high. It is not a significant concern for me as insider ownership is not a criteria for corporate success, especially in the junior exploration space. Commerce does not pay themselves high salaries as being the case with many other juniors. This means more of your investment dollars go into the ground (i.e. exploration) by comparison.

I would also point out that the management team behind Commerce have been shareholders since 1999, when the company initiated their seed financing round.

Questioning a management team's commitment to success by looking at insider ownership is a poor endeavour of evaluation. I prefer a management team that pays itself reasonably plus options, as oppose to one that pays itself obscenely so they can buy large amounts of shares only to promote larger inside ownership by what is basically an artificial means.

Why did you never include Medallion in your research and comparisons?

Medallion Resources Ltd. has not been included in any of my previous articles, simply because their strategy does not involve a physical asset yet. It's basically a different category and does not have economics applied to it yet. This would make it very difficult to compare them to any other company in the sector, and then especially with ones that have a different business plan.

Medallion would be fairly compared to other companies looking to be a REE processor, such as IMC, or Infinium Metals, and their economic information would be a welcome start to such a comparison.

Analyst Coverage

[Research #13](#) "Shedding Light onto the Rare Earth Playing Field"

[Research #12](#) "Key Milestone Achieved from Ashram's Pilot Plant Operations"

[Research #11](#) "Rumble in the REE Jungle: Molycorp vs. Commerce Resources – The Mountain Pass Bubble and the Ashram Advantage"

[Research #10](#) "Interview with Darren L. Smith and Chris Grove while the Graveyard of REE Projects Gets Crowded"

[Research #9](#) "The REE Basket Price Deception & the Clarity of OPEX"

[Research #8](#) "A Fundamental Economic Factor in the Rare Earth Space: ACID"

[Research #7](#) "The Rare Earth Mine-to-Market Strategy & the Underlying Motives"

[Research #6](#) "What Does the REE Market Urgently Need? (Besides Economic Sense)"

[Research #5](#) "Putting in Last Pieces Brings Fortunate Surprises"

[Research #4](#) "Ashram – The Next Battle in the REE Space between China & ROW?"

[Research #3](#) "Rare Earth Deposits: A Simple Means of Comparative Evaluation"

[Research #2](#) "Knocking Out Misleading Statements in the Rare Earth Space"

[Research #1](#) "The Knock-Out Criteria for Rare Earth Element Deposits: Cutting the Wheat from the Chaff"



Disclaimer and Information on Forward Looking Statements:

All statements in this report, other than statements of historical fact should be considered forward-looking statements. Much of this report is comprised of statements of projection. Statements in this report that are forward looking include that REE and metal prices are expected to rebound; that Commerce Resources Corp. or its partner(s) can and will start exploring further; that exploration has or will discover a mineable deposit; that the company can raise sufficient funds for exploration or development; that any of the mentioned mineralization indications or estimates are valid or economic. Such statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in these forward-looking statements. Risks and uncertainties respecting mineral exploration and mining companies are generally disclosed in the annual financial or other filing documents of Commerce Resources Corp. and similar companies as filed with the relevant securities commissions, and should be reviewed by any reader of this report. In addition, with respect to Commerce Resources Corp., a number of risks relate to any statement of projection or forward statements, including among other risks: the receipt of all necessary approvals and permits; the ability to conclude a transaction to start or continue development; uncertainty of future REE and metal prices, capital expenditures and other costs; financings and additional capital requirements for exploration, development, construction, and operating of a mine; the receipt in a timely fashion of further permitting for its legislative, political, social or economic developments in the jurisdictions in which Commerce Resources Corp. carries on business; operating or technical difficulties in connection with mining or development activities; the ability to keep key employees, joint-venture partner(s), and operations financed. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information. Rockstone and the author of this report do not undertake any obligation to update any statements made in this report.

Disclosure of Interest and Advisory Cautions:

Nothing in this report should be construed as a solicitation to buy or sell any securities mentioned. Rockstone, its owners and the author of this report are not registered broker-dealers or financial advisors. Before investing in any securities, you should consult with your financial advisor and a registered broker-dealer. Never make an investment based solely on what you read in an online or printed report, including Rockstone's report, especially if the investment involves a small, thinly-traded company that isn't well known. The author of this report is paid by Zimtu Capital Corp., a TSX Venture Exchange listed investment company. Part of the author's responsibilities at Zimtu is to research and report on companies in which Zimtu has an investment. So while the author of this report is not paid directly by Commerce Resources Corp., the author's employer Zimtu will benefit from appreciation of Commerce Resources Corp.'s stock price. In addition, the author owns shares of Commerce Resources Corp. and would also benefit from volume and price appreciation of its stock. In this case, Commerce Resources Corp. has one or more common directors with Zimtu Capital Corp. Thus, multiple conflicts of interests exist. The information provided herewithin should not be construed as a financial analysis but rather as an advertisement. The author's views and opinions regarding the companies featured in reports are his own views and are based on information that he has researched independently and has received, which the author assumes to be reliable. Rockstone and the author of this report do not guarantee the accuracy, completeness, or usefulness of any content of this report, nor its fitness for any particular purpose. Lastly, the author does not guarantee that any of the companies mentioned will perform as expected, and any comparisons made to other companies may not be valid or come into effect. Please read the [entire Disclaimer](#) carefully. If you do not agree to all of the Disclaimer, do not access this website or any of its pages including this report in form of a PDF. By using this website and/or report, and whether or not you actually read the Disclaimer, you are deemed to have accepted it. Information provided is educational and general in nature.

Analyst Profile & Contact:

Stephan Bogner (Dipl. Kfm., FH)
Mining Analyst
Rockstone Research
8050 Zurich, Switzerland
Phone: +41-44-5862323
Email: sb@rockstone-research.com



Stephan Bogner studied at the International School of Management (Dortmund, Germany), the European Business School (London, UK) and the University of Queensland (Brisbane, Australia). Under supervision of [Prof. Dr. Hans J. Bocker](#), Stephan completed his diploma thesis ("Gold In A Macroeconomic Context With Special Consideration Of The Price Formation Process") in 2002. A year later, he marketed and translated into German Ferdinand Lips' bestseller ("Gold Wars"). After working in Dubai for 5 years, he now lives in Switzerland and is the CEO of [Elementum International AG](#) specialized in duty-free storage of gold and silver bullion in a high-security vaulting facility within the St. Gotthard Mountain Massif in central Switzerland.

Rockstone is a research house specialized in the analysis and valuation of capital markets and publicly listed companies. The focus is set on exploration, development, and production of resource deposits. Through the publication of general geological basic knowledge, the individual research reports receive a background in order for the reader to be inspired to conduct further due diligence. All research from our house is being made accessible to private and institutional investors free of charge, whereas it is always to be construed as non-binding educational research and is addressed solely to a readership that is knowledgeable about the risks, experienced with stock markets, and acting on one's own responsibility.

For more information and sign-up for free newsletter, please visit:
www.rockstone-research.com