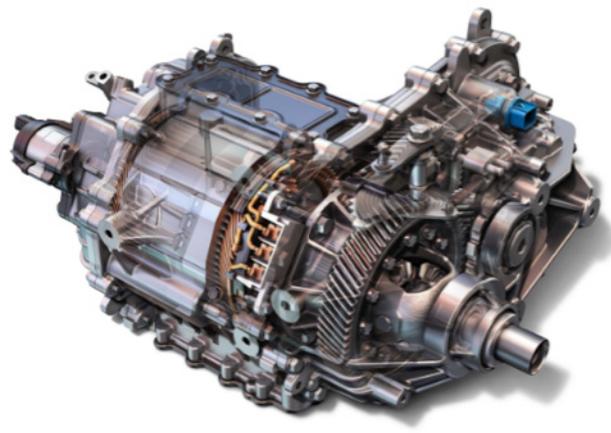


ALQUIMISTA SPECIAL REPORT

How to Profit from the Commodity Market's Blind Spot

Clean Energy and the Electric Vehicle Revolution
"Looking Beyond the Battery"

Three Key Rare Earth Stock Recommendations



“The Secret Ingredients of Everything”

National Geographic



“The Oil of the 21st Century”

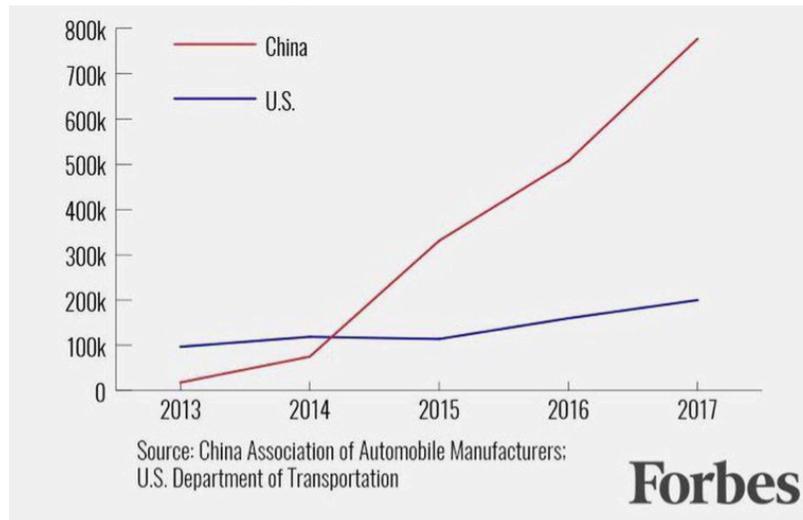
Forbes

Summary of Investment Thesis

The United States and China are in an economic cold war - increasingly competing for the commanding heights of global industrial markets.

China has already made clear in its government-issued “Made in China 2025” plan that it intends to be the global leader in electric vehicles (EV).

Electric Vehicle Sales



China accounts for 85% of global rare earth production and refining of these materials that are vital to production of permanent magnets for EV motors. China will no doubt use this leverage to keep more of these rare earths at home and may cut back production or limit these exports to gain a strategic edge. China may also become a net importer of these materials. All this will put upward pressure on rare earth prices.

EV battery materials lithium and cobalt have already taken off - hybrid and EV motor materials neodymium and praseodymium are next.

Therefore, this investment report recommends a portfolio of three rare earth companies poised to profit in the upcoming market realization.



Executive Summary

One of my favorite books is Daniel Yergin's riveting tale of the major role oil played in the 20th century; *The Prize: The Epic Quest for Oil, Money & Power*. Oil not only powered the economy, it also played a pivotal role in the century's statecraft. But the following sentence in the book's prologue really caught my eye.

“As we look toward the 21st century, it is clear that mastery will certainly come as much from a computer chip as from a barrel of oil”

But what's behind the computer chip and advanced technology that form the backbone for so much that we take for granted in modern life? The answer is strategic metals and, in particular, an important subset called rare earth elements (REEs). These vital ingredients are critical to advancing technologies to power economic growth.

They are also invisibly intertwined with national economic strategies, geo-politics, wealth and power.

Beginning with atomic number 57, rare earths include: lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium. Two additional non-lanthanide metals -- yttrium and scandium are related. These seventeen elements are grouped together as rare earths because they exhibit similar chemical and physical properties.



Dysprosium



Europium



Neodymium



Terbium



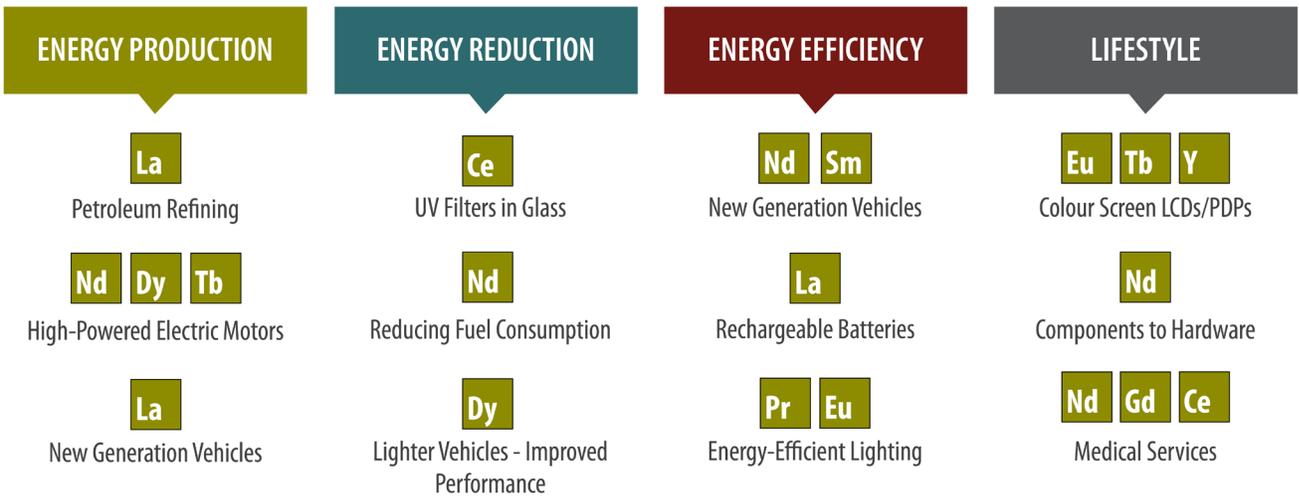
Yttrium

Rare earths are the special ingredients of the age of industry and technology. Like yeast in making bread and wine, they are required in small quantities in all sorts of products from cell phones to advanced weapons systems, aircraft engines, robots and imaging systems. Rare earth elements, although not particularly rare, are very difficult to find in economic quantities and are time consuming and expensive to extract and process.



The real value of these metals is their unique thermal, electrical, optical and magnetic properties for which there are no substitutes. This allows for miniaturization and much lighter, stronger, resilient, and efficient components.





Since the 1990's, China has become the Saudi Arabia of rare earths as the country's favorable geology, low cost labor and lax environmental standards allowed it to produce about 85% the world's production. While China's near monopoly is reason alone to raise concern, China has used its power to influence international affairs.

After a long period of weak pricing and being off the front page, rare earths are now back in the news.

What has changed? In short, the momentum behind clean energy, wind power, robotics and, in particular, electric vehicles (EV) and the entire infrastructure that supports these trends.

While traditional petrol or diesel combustion engine motor vehicles each use approximately 0.7 kg of NdPr oxide, electric or hybrid vehicles require at least an additional 1 kg.

Backing these developments is a confluence of trends and events. There has been significant progress in materials science regarding batteries and motors. The numbers show that we are very close in reaching a point of critical mass – an inflection point when all the benefits of scale start kicking in.

In addition, government emission targets and consumer subsidies for hybrid and electric vehicles are driving markets forward. Finally, China, and to a lesser degree India, have significant producer incentives to encourage scale up of EV production.

While EV batteries, and in particular cobalt and lithium, have garnered most investor and media attention, we believe that EV motors have been overlooked offer significant upside potential.

EV motors are, in turn, dependent on rare earth permanent magnets, which are 5-10 times stronger than regular magnets. This leads to lighter and more efficient motors. For example, the Chevy Bolt motor weighs only 38 kg (88lbs). The key rare earths for these magnets are Neodymium and Praseodymium (NdPr).

This special report will focus on the high growth hybrid and electric vehicle (EV) markets and key ingredients in the EV motor are the rare earths neodymium and praseodymium. (sometimes called "NdPr")



Recent Nd Pr Supply & Price Trends

Rare earth element (REE) prices moved into a steady uptick across the suite of elements in 2017 after half a decade of decline.

In part, this renewed interest in the suite of rare earths came from new energy technologies using permanent magnets, with neodymium (Nd) and praseodymium (Pr) essential to the development of NdFeB (neodymium-iron-boron) permanent magnets used in the power train of electric vehicle (EV) motors.

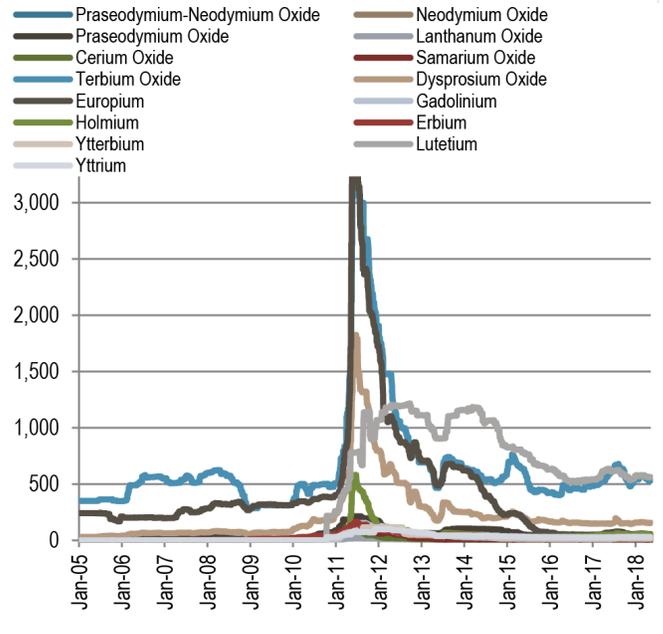
The electrification of the automotive industry is being driven by ambitious national targets to meet environmental targets. Roskill forecasts that by 2027, close to 70% of new passenger vehicle sales will have some degree of electrification - from hybrids to full battery EVs.

Despite growing demand, the accelerated price bump in 2017 was primarily driven by environmental reforms and closures in China causing a tightening supply from producers, followed by a recovery in prices as producers came back online.

In April of 2018, China's Ministry of Industry and Information Technology (MIIT) announced a 40% increase in the China rare earth mining quotas for the first half of 2018. This increase in production quotas is mostly offset by cutbacks at smaller, illegal mines.

China Rare Earth Price History

(US\$/kg-ex VAT)



Source: China Customs, Public Filings, Bloomberg.



The United States and China's Battle to Dominate Global Hybrid and Electric Vehicle (EV) Markets

America once dominated the world's auto industry until a complacent Detroit underestimated the determined threat from Japan.

Could it really happen again?

China is equally determined to be the leader in electric vehicles just as improvements in technology and stricter environmental regulations from governments are laying the groundwork for an explosive growth of electric cars. In the electric car industry they are playing for keeps. For example, China has required Chinese automakers to use batteries made in Chinese factories that have been operating for more than a year, effectively eliminating the major Japanese and South Korean competitors.

Check this out - China's share of global electric vehicle production has gone from 1.2% in 2013 to 22.6% in 2017. And China has a huge advantage over America that Japan never had - tremendous scale due to its population of 1.3 billion people.

Bloomberg has recently confirmed that \$90 billion is being invested in electric vehicle development by global automakers and a recent McKinsey report projects that by 2020, two hundred new hybrid electric vehicle models will be launched.

Major auto groups -- led by Toyota, GM and BMW are now racing to develop a solid state battery that will reduce recharge time from hours to minutes while tripling the EV's range. This means that by 2022, the all-in cost of an EV is expected to be lower than a traditional combustion engine vehicle - without subsidies.



Crossing the Hybrid and Electric Vehicle Takeoff Point

What all this evidence points to is that we are approaching a takeoff point for sharp growth for EV markets. The stakes are high – the current global auto business generates \$2.5 trillion of sales each year.

The world’s automakers are in the midst of a massive transition to electric vehicles and, while the build up often takes more time than expected, the takeoff is oftentimes explosive.

“Things take longer to happen than you think they will, and then they happen faster than you thought they could.”

Economist Rudi Dornbusch

Below is a quick rundown on how global major automakers are revving up for the EV revolution.

GROUP	2017 ANNUAL SALES (All Pass. Vehicles)	2017 ANNUAL SALES (EV Only)	EV SALES AND DEPLOYMENT TARGETS
Renault - Nissan	10.6 million	0.3 million	Aims for 20% of sales in 2022 to be EVs
Volkswagen	10.5 million	0.1 million	Targeting sales of 2 to 3 million EVs annually by 2025; plans to only offer B/PHEVs from 2020
Toyota	10.2 million	1.3 million	All vehicles electrified by 2025; targeting sales of 5.5 million BEVs and PHEVs per annum by 2030
GM	10.0 million	0.1 million	Plans to offer 20 BEV models by 2023; targeting sales of 1 million BEVs annually by 2026
Hyundai - Kia	7.3 million	0.2 million	Targeting 14 BEV models and 24 PHEV, HEV, and FCEV models by 2025
Ford	6.2 million	0.1 million	Plans to offer 16 BEV models and 24 PHEV and HEV models by 2022
Honda	5.3 million	0.2 million	Aims for two-thirds of sales to be EVs by 2030
PSA	3.6 million	0.01 million	Plans to offer and electrified variant of every model it produces by 2025
Daimler	3.3 million	0.05 million	Plans to offer and electrified variant of every Mercedes-Benz model by 2022
BMW	2.2 million	0.1 million	Aims for 15% to 25% of group sales to be EVs by 2025
BAIC	1.3 million	0.1 million	Targeting sales of 0.5 million B/PHEVs by 2022; plans to only offer B/PHEV from 2025
Changan	1.3 million	0.03 million	Plans to only offer B/PHEV from 2025
Volvo	0.5 million	0.02 million	Plans to only produce EVs from 2019; targeting sales of 1 million EVs annually by 2025
Tesla	0.1 million	0.1 million	Targeting production of 0.5 million BEVs in 2018 and 1 million BEVs in 2020

Source: MarkLines, EV-Volumes, Adamas Intelligence research



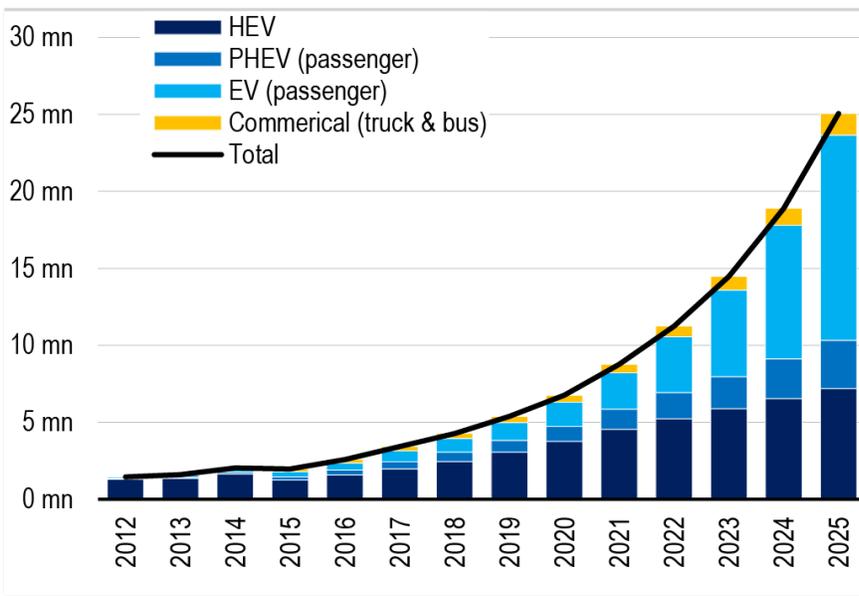
Another good sign is that in addition to the major global auto firms around the world, many new entrants are trying to carve out parts of this market.

Below are some charts that demonstrate the potential going forward.

My independent sources indicate that these are conservative projections due to the enormous China market. The mandarins in Beijing have an extra incentive to push forward due to the smog problem in major cities - imagine, China has more than 100 cities with populations over 2 million. Smog is a major political issue that President Xi has put at the top of his agenda. EVs are still at a relatively low base but the consensus is that the growth rate of adoption of this technology is strong and momentum will pull us forward.

Looking forward, the expansion of EV markets is dependent on a wide range of assumptions. You can also see that the mix of EVs will also be a key factor in adoption rates.

Electric, Hybrid and Plug-in Hybrid Sales (m)



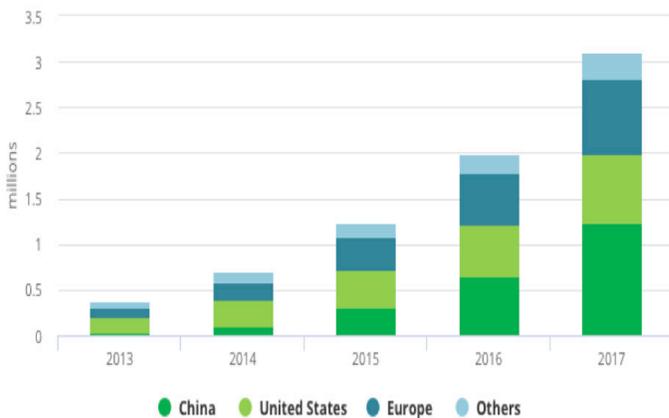
Source: UBS Research.

Over 1 million electric cars were sold in 2017 - a new record - with more than half of global sales in China. The total number of electric cars on the road exceeds 3 million worldwide, up 50% from 2016.

In terms of market share, Norway remains the world's most advanced market for electric car sales, with over 39% of new sales in 2017. Iceland follows at 12%, then Sweden at 6%.

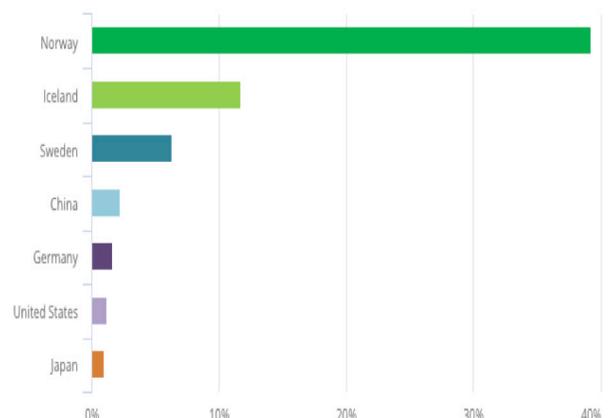
Surprisingly, Japan lags both America and Germany. Nevertheless, Japan's automakers are at the forefront of developing new EV technology.

Number of Electric Cars in Circulation



© OECD/IEA

Electric Car Market Share 2017



© OECD/IEA



Looking Beyond the EV Battery (and Lithium and Cobalt) to the Motor Metals

You have probably read and heard a lot about lithium and cobalt over the past year because of their key role they play in the production of electric vehicle batteries. Investors have already jumped on this story that sent cobalt and lithium stock prices soaring before settling down more recently.

Why? Simply because these are the key materials likely to be in short supply as and when significant EV battery demand enters the market. Current production could not handle the volumes of lithium and cobalt required.

The Biggest Blind Spot in Global Commodity Markets

While investors are focused on materials for EV batteries - what are they missing?

Forgive me but I just want to yell - it's the motor stupid!

What the entire financial mass media has missed is that an electric vehicle's motor is just as important as the battery. The cost and performance of the electric vehicle motor is a critical part of the story.

After all, it's the motor that provides the torque and power to move the vehicle forward.



Electric motor in the Acura NSX



Permanent Magnet Rare Earths - Neodymium & Praseodymium (NdPr)

The key ingredients to plug-in hybrid and EV motors are two “hidden” permanent magnet rare earths - Neodymium and Praseodymium - also referred to as NdPr.

The reason permanent magnets are important is that they allow the motor to be smaller, lighter and more efficient. This is why the Chevy Bolt as well as other leading EV makers use these materials and why Tesla, after experimenting with other options, went with permanent magnets for its Tesla Model 3.



Importantly, manufacturers need NdPr to make these motors - there are no substitutes. And in addition to the EV motor - there are an additional much smaller 25 motors spread throughout the entire electric vehicle that requires NdPr.

Prices for Neodymium have fluctuated between \$40 and \$85 a kilogram over the past year and annual production is estimated to be 30,000 tonnes a year.

This is why one company that produces both of these rare earth materials has a stock that has more than tripled over the past 24 months.

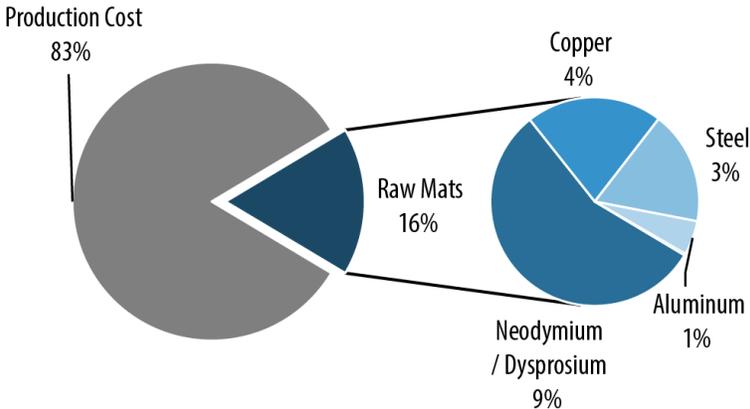
Electric cars are the biggest driver for rare earths today, with each requiring about 1 kilogram of rare-earth materials (primarily NdPr) for permanent magnets.

In addition small amounts of NdPr are used on power steering, cooling systems and the small electric motors that operate windows, wipers and seats.

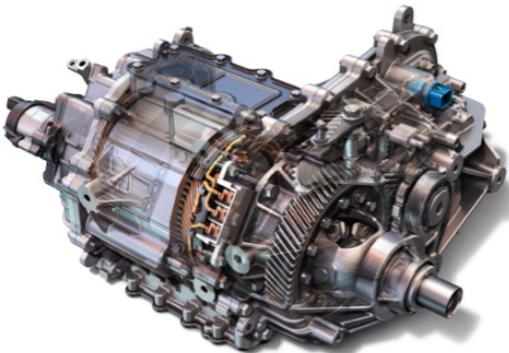
The average electric car uses ten times more permanent magnets--ones that never lose their magnetism--than a traditional car of ten years ago.

As you can see below, a UBS study shows that neodymium represents 9% of production costs and a surprising 56% of raw material costs of its motor.

Bolt E-Motor Cost Breakdown (total = \$1,200)



Source: UBS estimates



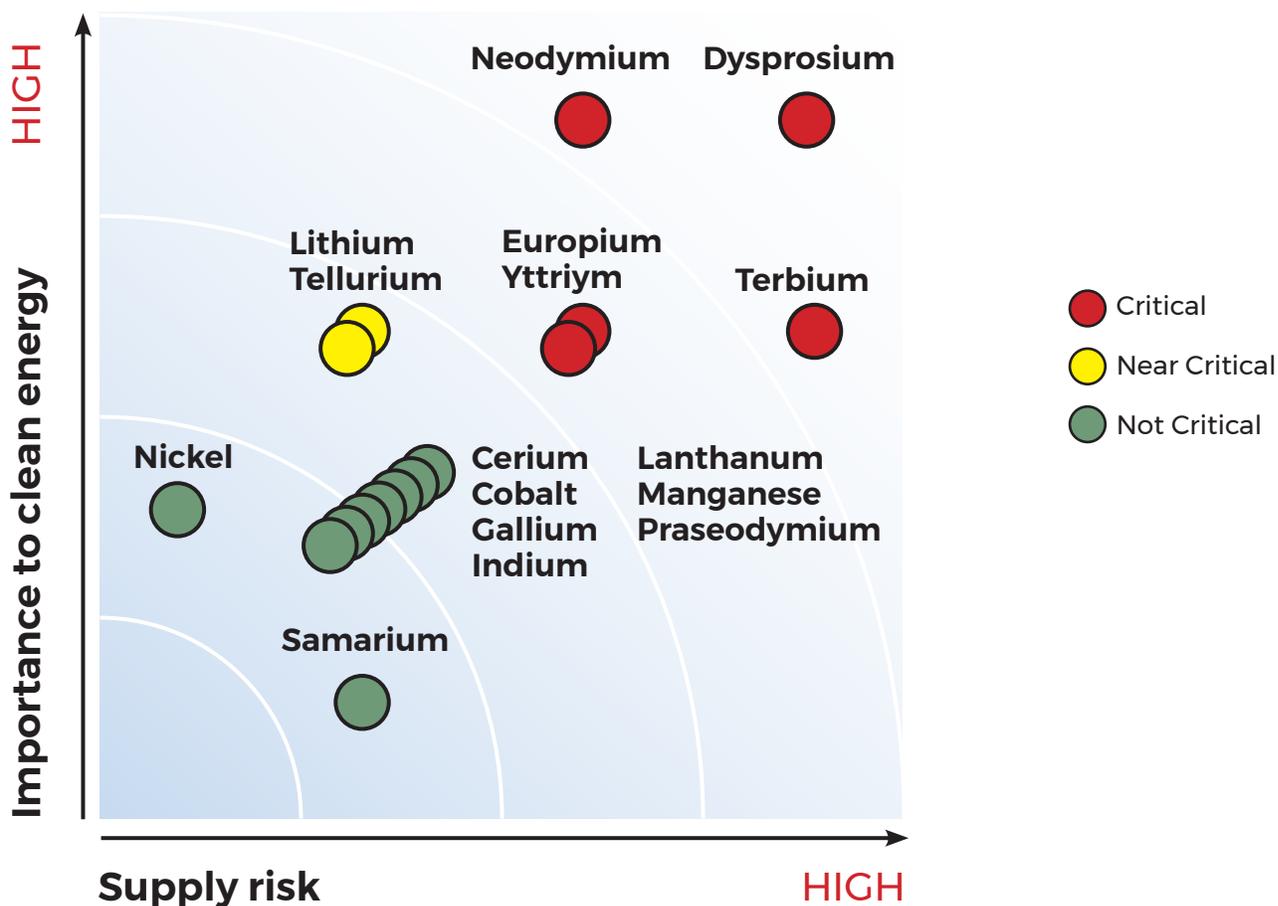
The Chevy Bolt motor - weight of only 38 kg (88lbs)



Significant Shortage Projected for Neodymium & Praseodymium (NdPr)

Estimates by leading industry observers expect the shortage of these magnet metals to be by 2025 in the range of 20,000 - 30,000 tonnes per year, which is equivalent to current legal production levels. This shortage will grow worsen as Chinese production quotas to take full effect by 2020 and it is also forecast that China could become a net importer of NdPr by 2025.

Magnet Metals are Important and Have High Supply Risk



Takeaways from UBS Tear Down of Chevy Bolt

A recent tear down analysis of a Chevy Volt by a research team at UBS, one of the world's largest investment banks, also determined that rare earths such as NdPr would be under intense demand as the EV market moves forward.

In fact, excluding the battery materials, the most important resources going forward are these rare earths.

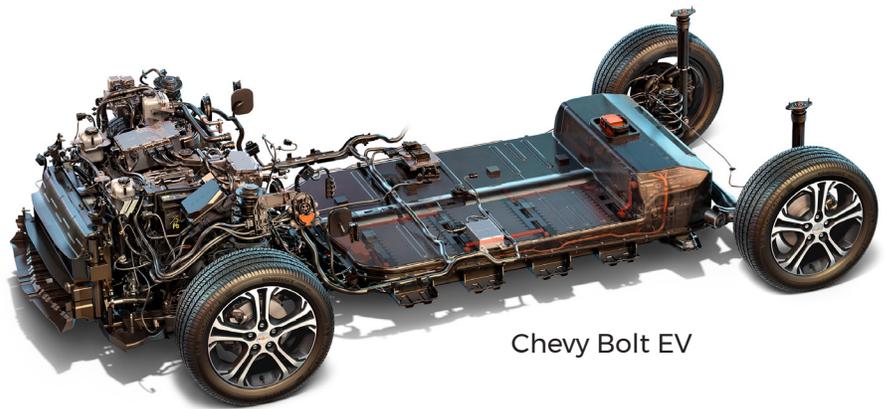
UBS extrapolated its findings about Bolt production costs to make a bold prophecy: EVs will prove to be "the most disruptive car category since the Model T Ford." The company predicts "total cost of consumer ownership can in some markets reach parity with combustion engines from 2018."

EVs will still carry higher sticker prices, but when the savings on fuel and maintenance are considered, they will be cheaper. UBS expects this price parity to be reached first in Europe, where gas prices are higher, and in the US several years later.

"This will create an inflection point for demand," said the UBS analysts, with typically Swiss understatement. Once true price parity is breached, a tidal wave of disruption could sweep the industry. UBS has raised its forecast for EV sales in 2025 to 14.2 million - 14% of global car sales. It also predicts that automakers will start earning a profit of about 5% on EVs by 2023, equivalent to today's average profit margin.

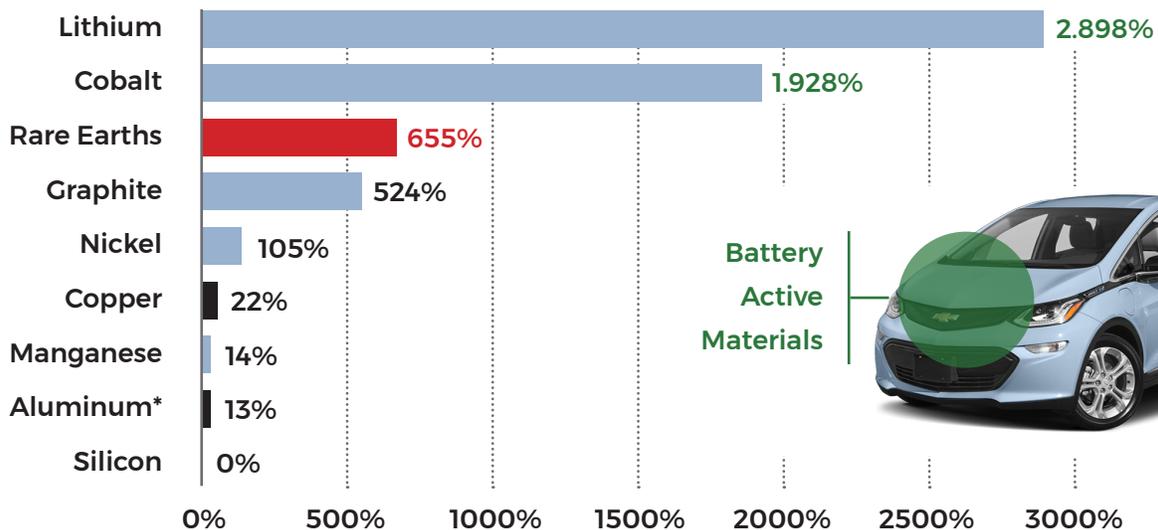
It is important to note that rare earths play a prominent role throughout an EV.

The UBS report highlight in this graph that, after lithium and cobalt, the next incremental commodity demand in a 100% EV world would be rare earths. No other non-battery commodity comes close.

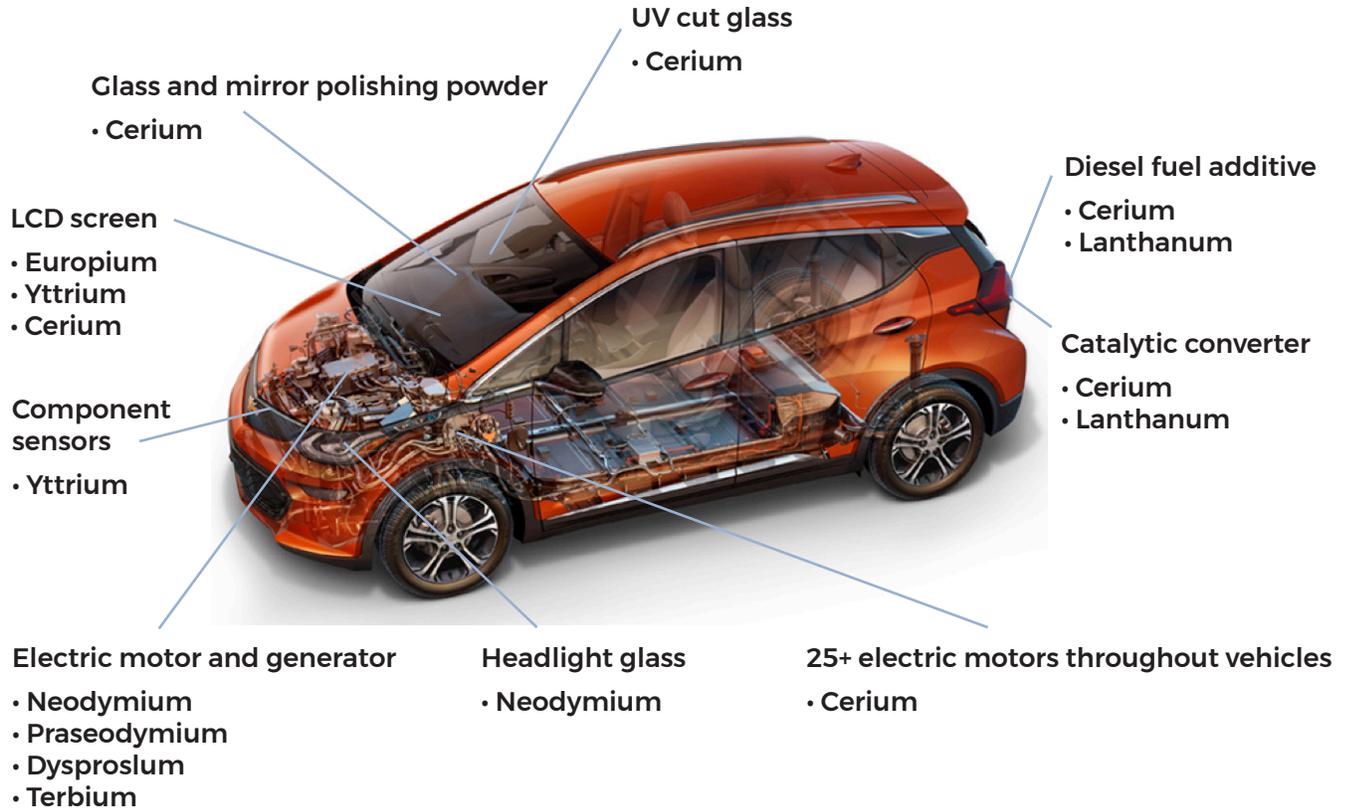


Incremental Commodity Demand in a 100% EV World

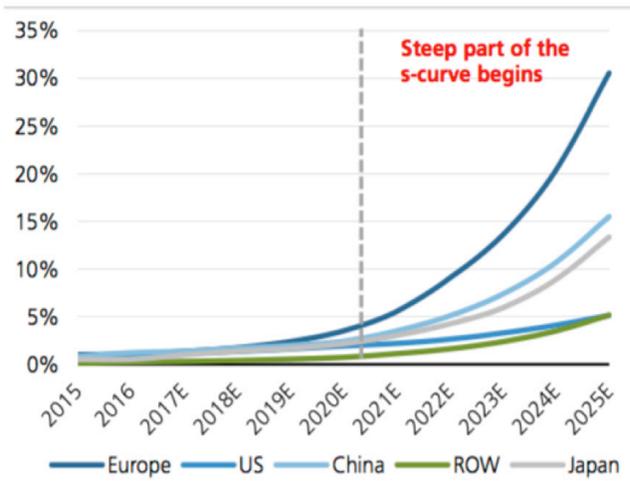
Percentage of today's global production



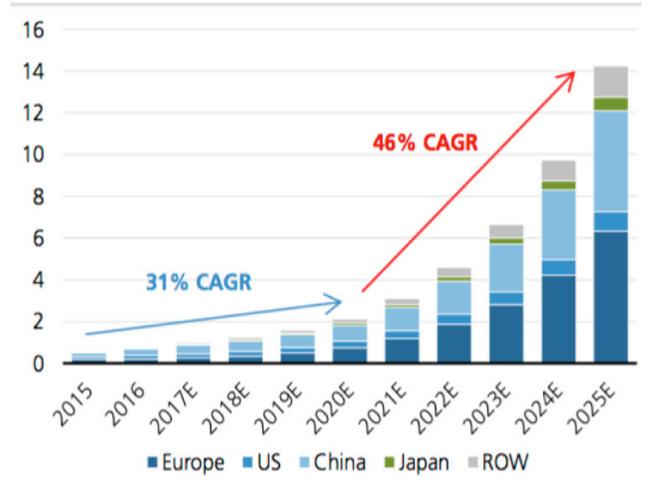
Rare Earths in xEVs



Projected EV Market Growth



Source: UBS estimates



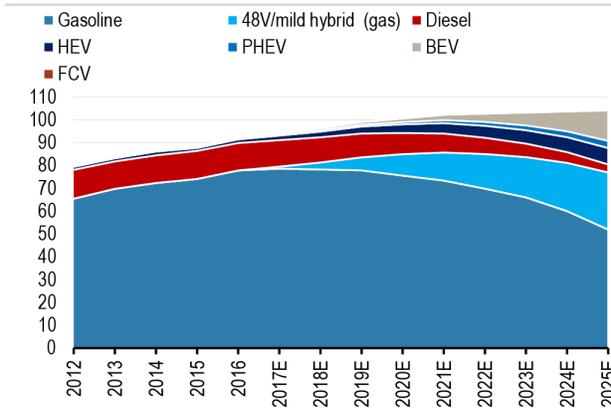
Source: UBS estimates

The leading Swiss investment banking firm, UBS, initiated coverage of this sector in July 2018 with a favorable analysis and focus on magnet rare earths neodymium and praseodymium (NdPr).

Here are a couple of their graphs that highlight their projections of rapid growth of electric, hybrid and plug-in hybrid sales.

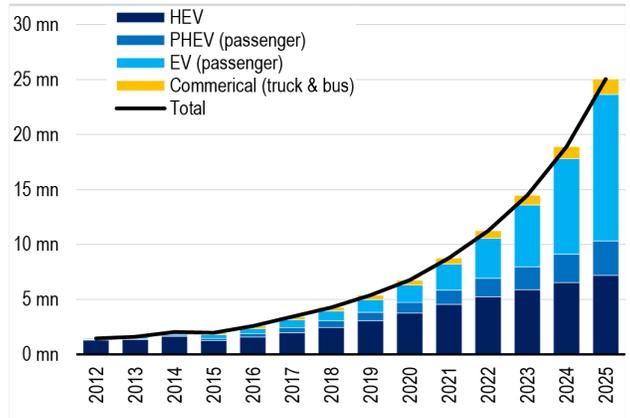


Global Light Vehicle Sales by Powertrain (m)



Source: UBS Research.

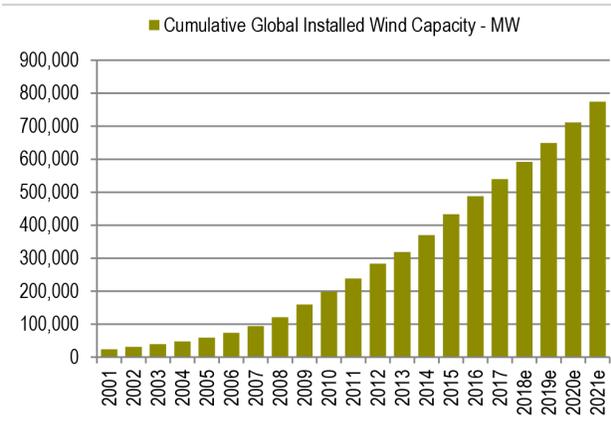
Electric, Hybrid and Plug-in Hybrid Sales (m)



Source: UBS Research.

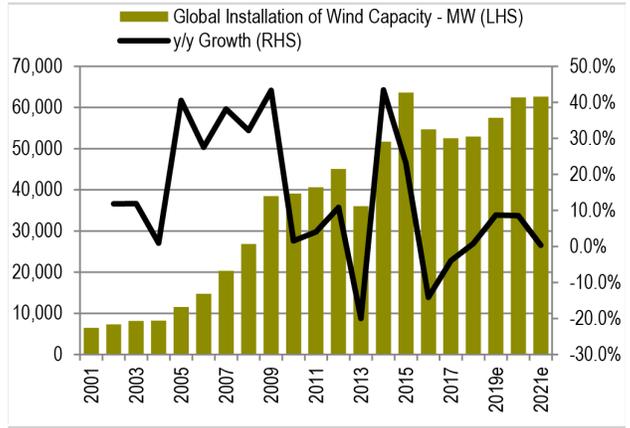
The report further emphasized by the huge growth of wind turbines - which also use NdPr magnets.

Global Installed Wind Capacity (MW)



Source: GWEC

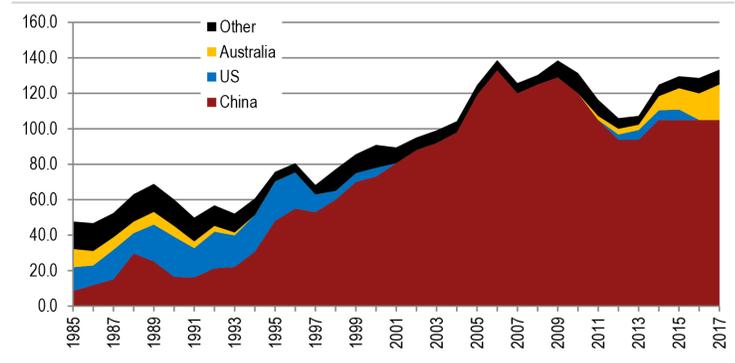
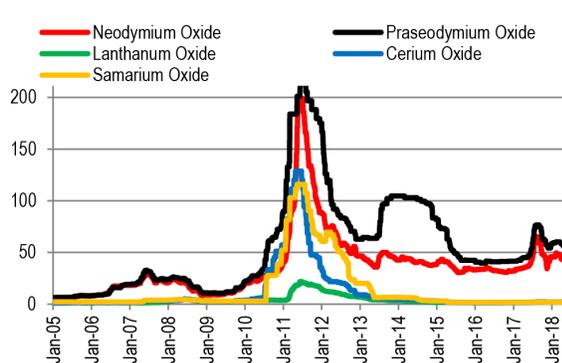
Incremental Wind Installations Each Year (MW)



Source: GWEC

In addition, UBS points out that relative to other rare earths, Neodymium and Praseodymium have held their value better than some other rare earths throughout the last fifteen years.

Global Rare Earth Production (ktpa)



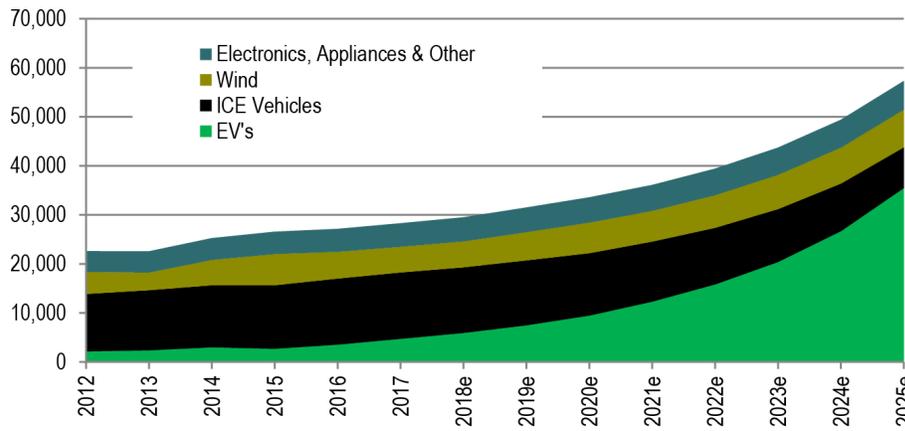
Source: US Geological Survey.

Furthermore, although China has been forced by a WTO ruling to end export quotas of these prized materials, there is a clear trend of China consolidating and minimizing the amount of rare earths that they allow to be exported. Data from the Chinese government shows that China exports about 30% of production and given the trend lines of domestic needs, China is on track to become a net importer by 2025.



UBS Demand/Supply Analysis

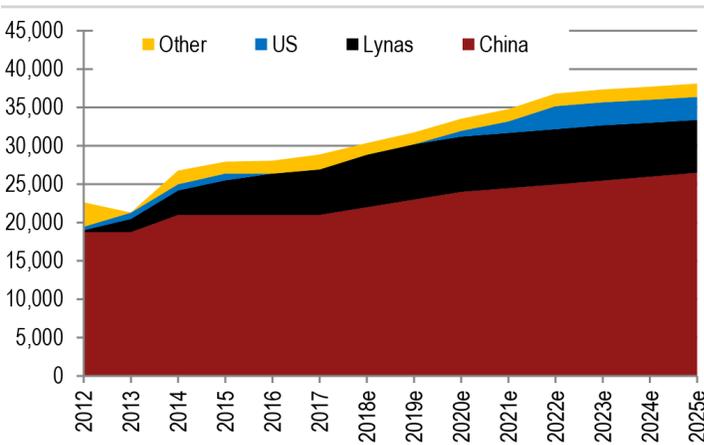
Simple Demand Model for NdPr (tonnes per annum)



Source: Public Filings and UBS estimates.

UBS estimates that the current market for NdPr is about 30,000 tonnes per annum and we have split the market into 4 buckets, which are EVs, existing Internal Combustion Engines, Wind Generators and Other (which is dominated by electronics and appliances).

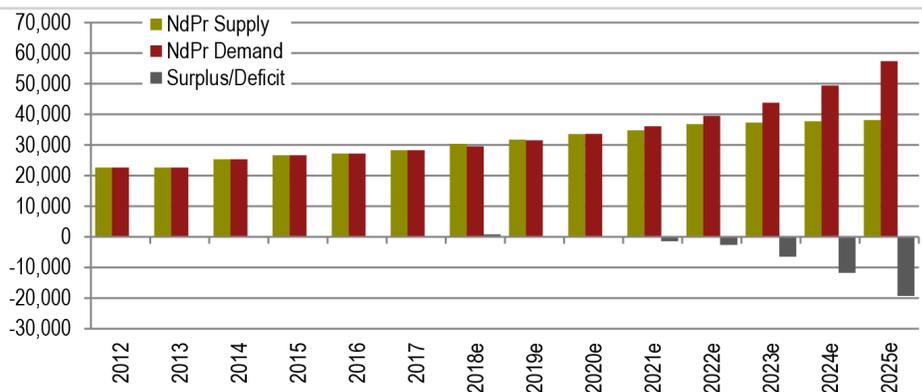
NdPr Supply Growth (tonnes pa)



Source: US Geological Survey, Company Filings, UBS Research.

Applying its growth assumptions to the vehicle market and the wind market drives the following strong demand growth for NdPr. UBS sees the market growing to about 55,000 tonnes per annum by 2025e.

NdPr Supply and Demand Balance (tonnes pa)



Source: US Geological Survey, Company Filings, UBS Research.

On the supply side of the equation, as you can see below, by 2021 the UBS projected supply shortfall will develop growing to a substantial gap of 20,000 tonnes or more by 2024.



Three Key Rare Earth Stock Recommendations



Neo Performance Materials (NEO.TO, NOPMF)

Re-Launch with Motivated and Experienced Management Team



Summary: strong cash flow, no debt, high cash position, growth markets, scalability, low capital expenditures, strong free cash flow conversion, low commodity exposure, dividend.

Neo Performance Materials is an experienced diversified play on the key ingredients in permanent magnet metals as well as other rare earths. Because Neo's products are increasingly found in hybrid vehicle power steering systems, motors, fuel pumps, mirrors and trunk door lifts, I see its stock as a smart play on the electrification of vehicles

Established as AMR in 1995, the company has an interesting corporate history. In June 2006, AMR changed its name to Neo Material Technologies Inc. (NEM). From 1995-2012, it was a refiner of rare earth products, with the bulk of its operations in China. Molycorp acquired Neo, which had a successful 20-year track record, in 2012 for \$1.3 billion in cash and stock but with a large debt burden Molycorp filed for Chapter 11 in 2015. In 2016, Neo emerged from the Molycorp bankruptcy and in 2017 Neo listed on the Toronto Stock Exchange (it also trades on the OTC market in America).

Neo runs its research and development, processing, manufacturing and sales efforts from three continents and employs a workforce of about 1,850. It should be noted, however, that the majority reside in China, from where over 85% of all global rare earths are sourced. Heavy Rare Earths such as dysprosium and terbium can fetch prices as high as \$400 per kilogram.



Geographically, China represents 33% of sale, Europe, 22% North America, 20% and Japan, 14%. Applications for the company's products include: hybrid and electric vehicles, automation, high precision optics, aerospace, robotics, mobile communications and medical imaging.

With 30 years of operating history, Neo Performance is a substantial company with a commanding 70% market share for certain magnetic metal powders.

Neo is one of the few non-Chinese companies with a license to separate rare earths in China and has 8 R&D facilities, 12 sales offices and 10 production facilities spread around the global.

While its core market is permanent magnet material, it offers some diversification geographically and with products aimed at a variety of industries from wastewater treatment to robotics, and products such as tantalum, niobium, gallium and super alloys.

The company has zero debt and \$88 million cash on hand and a proven, experienced management team. Oversight comes from strong board representation from Oaktree Capital, which was a secured lender to Molycorp.

NEO is a leading global manufacturer and processor of engineered and specialty materials made from rare earth elements and rare metals. Its products are crucial components in a wide range of everyday products. Industry exposure includes automotive, aerospace, consumer electronics, IT and energy. NEO was a division within Molycorp, emerging after a reorganization process and two years under Oaktree Capital (a 68.5% shareholder).

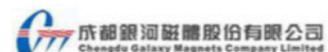
My view on the company's outlook is very positive.

In summary, NEO has the advantages of lower-cost Chinese operations and vertical integration, multiple revenue growth avenues, the potential to improve operating margins; strong, cash-positive balance sheet, and a stable, experienced management team and strong shareholder backing.

Behind Oaktree, is the legendary deep value, billionaire investor Howard Marks. He is a master of turning companies facing financial stress into opportunities for his funds and investors to capture upside potential while limiting downside risk.

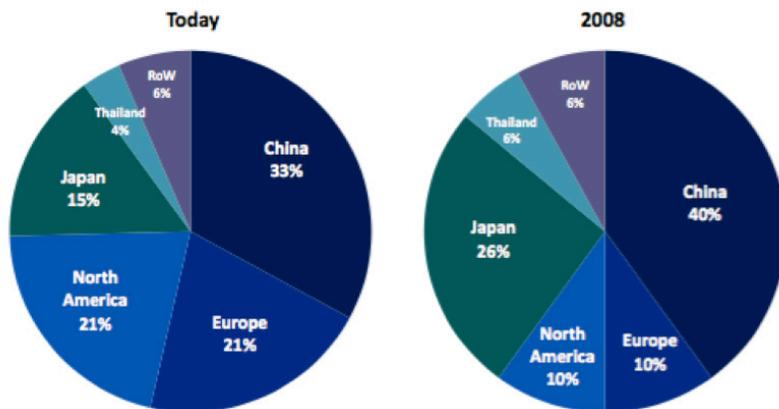
It is a significant advantage that several representatives from Oaktree are on Neo Performance's board and are also involved in direct management of the company. Oaktree has a 68% ownership stake in Neo. From a valuation perspective, Neo stock is trading about 18 times forward earnings. While this is on the high side of the market as a whole, rare earth related stocks often trade at multiples considerably higher.

Neo's top fifteen longstanding customers include Chengdu Galaxy Magnets Co., Ltd., H.C. Starck Co. Ltd., BASF, Daido Electronics Co. Ltd., Johnson Matthey plc, Panasonic Corporation, Samsung Group, Umicore, AzkoNobel N.V., Robert Bosch GmbH, LG Electronics Inc., and Koninklijke Philips N.V. ("Philips").



Operating Segment				
Market Position	Dominant supplier of neodymium-based powder for bonded magnets	Top 3 global producer of materials for auto catalysts	Only licensed foreign rare earth separator in China	The Top Producer of Gallium Trichloride (GaCl ₃)
Select Applications	EV and HEV traction motors, hard disk drives, power seats, fuel sensors, household appliances	Auto catalysts	Multi-layer ceramic capacitors, wastewater treatment, high precision optics	Jet engines, solar panels, medical imaging systems, high efficiency lighting, mobile communications
Industry Growth Target	6% - 12%	4% - 10%		3% - 7%
Key Customers	  	  	  	  
Competition	TDK Corporation, Hitachi Metals, Beijing Sanhuan New Material Hi-Tech	Rhodia (Solvay), Magnesium Elektron, Daiichi Kigenso Kaga, Kogyo Co. Ltd.	Lynas Corporation, six state-owned Chinese companies, ShinEtsu Chemicals Ltd.	SN Plus Inc., Ulba (a Kazatomprom company), H.C. Starck

Source: Neo Performance Materials Inc., Raymond James Ltd.



Neo is also less dependent on China and Japan than it was a decade ago.

Source: Neo Performance Materials Inc., Raymond James Ltd.



Luxfer - Neo Performance Announce Merger Plans

On December 18, 2018, - Luxfer Holdings signed a definitive agreement to purchase Neo Performance Materials. The combination of Luxfer and Neo creates a global leader of highly engineered, advanced, critical materials essential to clean energy and environmental sustainability. The purchase will be comprised of approximately US\$244M in cash and a further US\$367M in shares. Combined revenue of the two companies is estimated to approach US\$950M.

Our view is that the merger of Neo and Luxfer makes the combined entity not only larger but an equally attractive investment opportunity.

From Luxfer's point of view, the merger benefits the company in the following ways:

1. complements Luxfer's product portfolio of high-performance engineered materials with high-value rare earth and rare metal products and technologies.
2. expands Luxfer's geographic reach to Asia-Pacific region
3. immediately adds to Luxfer's earnings per share

The merger will result in a company roughly twice as large in revenue and profits, will broaden research & development capabilities, and broaden supply chain opportunities.

Importantly, the deal is a stock and cash transaction and will not increase debt.

Both companies are focused on deep customer relationships, strong product development capabilities, cost-competitive manufacturing and international opportunities.

The target date for the completion of the Luxfer-Neo transaction is the end of the second quarter of 2019. Of course there can be no assurance that the merger will complete but typically business combinations such as this are well-planned.

The Neo side offers Luxfer not only greater capabilities in the rapidly growing Asian technology materials market, as well as expansion in Asia as Neo Performance operates facilities in China, Thailand and South Korea.

Luxfer also gains access to a semi-integrated rare earth supply chain from rare earth processing through to metal and magnet alloy powder production.

Luxfer Corporate Overview

Luxfer's business can be divided fairly cleanly into two segments.

The first is a global materials technology business specializing in the design and manufacture of high-performance magnesium and zirconium.

The second is the manufacturing of high-pressure aluminum and gas cylinders and as a leading supplier of aluminum and composite super plastic formed components.

Luxfer's five business units - Luxfer Gas Cylinders, Luxfer Graphic Arts, Luxfer Magtech, Luxfer MEL Technologies and Luxfer Superform - provide innovative products and solutions worldwide to customers for use in a broad range of applications, primarily including defense, transportation, and healthcare.

Recommendation: Capture the rare earths exposure and growth of Neo Performance's key segments through investing in Luxfer (LXFR).

Luxfer stock has pulled back 25% since the merger announcement offering new investors an attractive entry point. Trading at 16 times trailing earnings with a dividend yield of 2.8% - LXFR has considerable upside potential as markets recognize its potential to become a leader in advanced materials and as rare earth prices rebound.



Lynas Corporation (LYC.AX, LYSCF)

Strong Revenue Growth and Significant Momentum Likely to Continue



Lynas, has taken a rare earth deposit in Australia and through good times and bad, has come back strong and is well positioned to benefit from the rare-earths shortage as China's tougher pollution laws and the growing popularity of electric cars are boosting prices.

Much of the credit should go to Lynas Chief Executive Amanda Lacaze, who stabilized the business, negotiated with creditors and made sure that the Malaysian plant was able to meet customers' demanding specifications. She slashed headquarters staff in Sydney and moved the rest and herself to Malaysia. She is still there which highlights that the processing of rare earths is the most challenging part of the business.

Lynas stands out as an integrated play on rare earths.

The company's rare earth raw materials come from its Mount Weld mine in Western Australia. It's an unusual mine because it does not operate continuously. Instead, roughly two "campaigns" a year lasting a few months each are all that's required to extract enough ore for a year of processing in Malaysia.

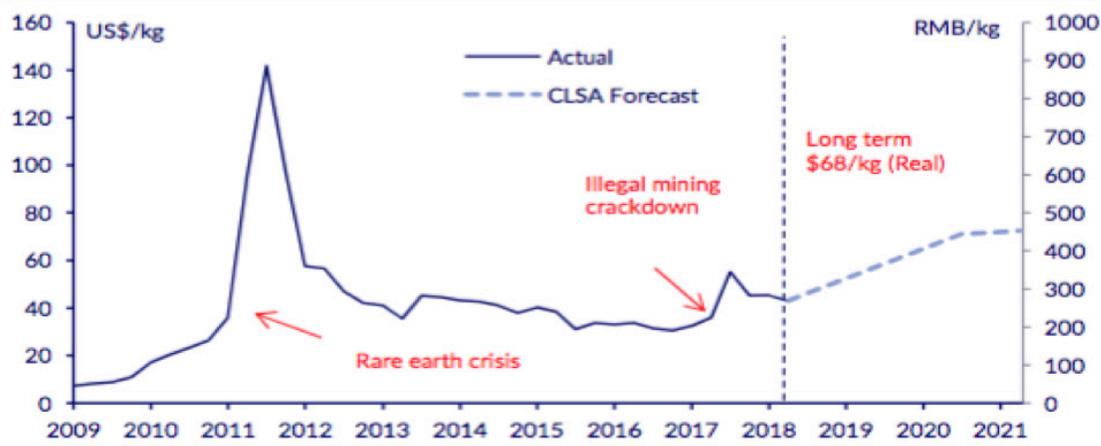
Richer in rare earths than most Chinese mines, Mount Weld is a competitive advantage for Lynas and also has facilities to produce a mineral concentrate that is shipped to its modern Malaysia processing plant. Lynas benefits from strong customer support, especially from a number of Japanese manufacturers keen to support a non-Chinese source of supply. The company has also developed strong supply chains to China.

Although NdPr accounts for only 25% of production, NdPr represents almost 90% of total revenue. The company is driving debt down and cash levels are up as annual revenue has climbed more than 500% since fiscal 2014. Institutional investors are taking notice of balance sheet improvements, a rebound in sales as well as firmer rare earth pricing.

CLSA predicts that, based on its bullish supply-demand outlook, the world will face a NdPr shortfall of 7,000 tons by 2020 and that the company's top line revenue (which increased 46% in fiscal 2018) will accelerate 84% from fiscal 2018 to 2020 with expanding margins leading to a 23% return on equity.

NdPr Price History and CLSA Forecast

FOB China Excluding 17% FOB



Source: SMM, CLSA Estimates



Rare Earth Oxide Supply by Location



Source: CLSA estimates

Share prices have been in a strong upward trend and in the last year have tripled in price. Still, the stock trades at less than book value.

UBS initiated coverage with a Buy rating and a A\$3.30ps price target. Lynas's assets are strategic, having the best global Rare Earth deposit, in our view, exploited through the only active non-China processing facility. Lynas's key product, which drives 90% of the revenue, is called Neodymium-Praseodymium (NdPr), used in high growth new energy applications such as Electric Vehicles and Wind Energy. To justify our valuation of \$3.27ps, we have undertaken a detailed incentive price analysis to estimate a long-term incentive price of US\$60/kg (ex-VAT) for NdPr. The share price implies closer to spot of US\$45/kg. Lynas is highly cash-generative and de-gearing quickly.

One issue that has received considerable media attention is that the Malaysian Government is requesting that Lynas remove waste from its rare earths' separation plant in eastern Malaysia. This caused the stock to drop significantly (26%) in early December.

Negotiations are ongoing but the worst-case scenario is that Lynas would have to move this waste back to Australia. In a recent update to investors, CLSA, a respected Hong Kong research and brokerage firm, did a cost analysis of this scenario.

Their conclusion is that the impact on earnings incorporating the cost of shipping waste back to Australia would be minimal - estimated to reduce earnings only 2%.

CLSA believes that this waste issue has been overstated leading to markets overreacting. It reaffirmed its strong buy recommendation for the stock and believes it has an upside of 134%.

Recommendation: the Company's latest quarter showed revenue up 18% over last year and, while NdPr pricing has been soft, there are signs that China may be cutting NdPr production in 2019. Malaysian government's review of lynas' operation does pose some regulatory risk but significant Japanese ownership mitigates this somewhat.

Year-end results should show net profits of about \$110 million, which would translate into a return on equity of about 40%. Build position incrementally - buy aggressively on weakness.



Medallion Resources (MDL.V, MLLOF)

Building a Low Cost Rare Earths Supply Chain in North America



There is one company we have found through intensive research at the forefront of helping to solve America's dependency on China for supply of rare earths.

Medallion Resources is a Canadian company with a simple low cost strategy to produce neodymium and praseodymium (NdPr) through basic, proven technology and smart partnerships all the while keeping the whole rare earth production chain in North America.

Medallion Resources is pursuing near-term magnet metal production, firstly in North America, by exploiting by-product monazite. Monazite is a rare earth element (REE) phosphate mineral containing significant amounts of the key magnet metals neodymium and praseodymium (NdPr).

NdPr is the key input material for the high-powered permanent rare earth magnets required for growing demands of vehicle electrification, wind power generation and robotics. Monazite is widely available as a by-product from heavy mineral sand mining operations and has a history as a commercial REE resource and well-understood metallurgy. Medallion is committed to following best practices and accepted international standards in all aspects of mineral transportation, processing and the safe management of waste materials.

This is a welcome development that we expect will attract significant media attention.

It all starts in the Southeastern region of the United States where heavy mineral sands are plentiful. Medallion arranges to source monazite from heavy mineral sand producers and then to extract a rare earths concentrate from this monazite sand.

It is a great example of what we are always looking for a company with a proven and experienced management team that limits risk through a low cost, low capital expenditure strategy presenting the company and investors with upside potential.

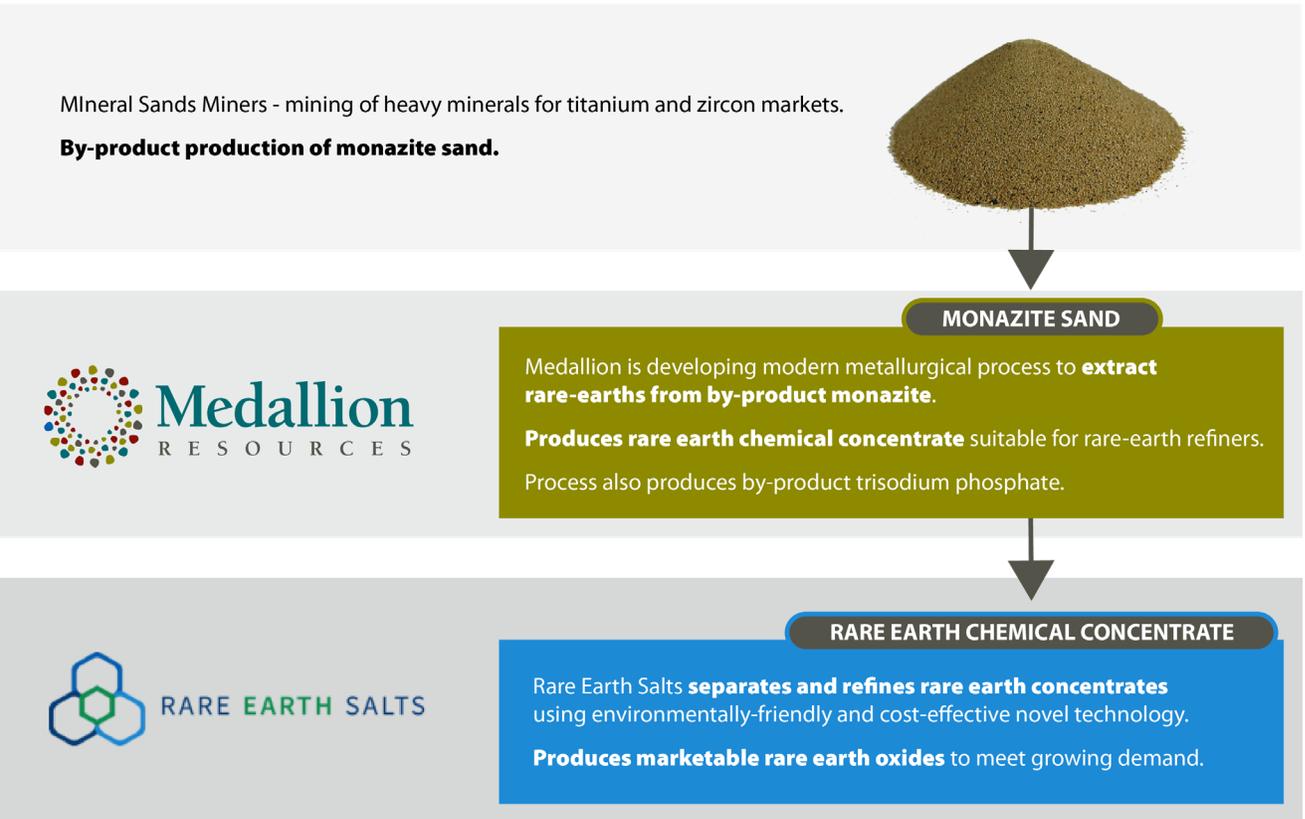
Medallion Resources is an innovator among rare-earth companies. As a micro-cap development stage company, it is off the radar screen of institutional analysts and investors and therefore present sizable discovery potential as investors increasingly look for rare earth opportunities. Medallion is challenging conventional practices by looking to apply known extraction techniques to mineralized beach sand deposits found in plentiful supply in countries outside of China.

By purchasing already processed and upgraded sand, being mined for its titanium, Medallion saves enormous production costs. If successful, they could leapfrog other hopeful rare-earth producers. In addition, Medallion's feedstock ore - monazite sand - typically contains 60% content of rare earths oxide.

Opportunities for Medallion to develop monazite sources outside North America are numerous. For example, there are substantial amounts of monazite sand produced currently in Brazil, Southern Africa and Australia.

The rare earths concentrate produced by Medallion is then shipped to a private company - Rare Earth Salts - a Nebraska company that has signed an agreement with Medallion to separate the rare earth concentrate into the high quality rare earth oxides including NdPr.





Medallion’s strategic separation partner, Rare Earth Salts, has developed an environmentally friendly technology for the separation and purification of Rare Earth Elements that provides a significant operational and capital cost advantage over the traditional solvent extraction methods. Its technology is being proven at commercial scale and functions on a broad range of rare earth concentrates.

Medallion and RES are cooperating on a business model to produce and market rare-earth products based on an integrated North American production chain. By combining business models and technologies, Medallion and RES are using the abundant and available by-product mineral monazite and processing it to marketable rare earth oxides. This approach is expected to be very cost-competitive relative to Chinese production—all within North America.

RES plans to expand the rare-earth separation capacity incrementally at its Nebraska facility with a target output of 3,500 tons per year of rare-earth oxides by 2022.

One development which will raise the profile of the Medallion-Rare Earth Salts partnership is that on August 13, 2018, President Trump signed into law the National Defense Authorization Act that sets an increased budget for defense expenditure. Section 871 specifically prevents purchase of US military equipment containing rare-earths magnets from certain non-allied nations, which includes China.

US national defense requirements, along with growing market demand for rare earth magnet metals, adds to the growing industry interest in non-Chinese sources. Medallion is well positioned to source and process monazite supplies from North American heavy-mineral sands providers and, in partnership with refiner RES, to quickly build-out a North American rare-earth supply chain.



North American Value Chain



While Medallion's stock is admittedly a speculative stock in the midst of building out its operations, it offers investor an attractive risk-reward opportunity.

Medallion offers a simple strategy that has low capital and operational expenditure approach that can be replicated around the world.

It has methodically raised equity through a series of private placements, has limited risk and capital requirements by developing reliable partnerships, and plans of financing its extraction facility likely with a blend of equity and debt.

The timing of its planned extraction facility is important. The company expects to arrange financing and begin construction in 2019.

Medallion has shipped rare earth concentrate to Rare Earth Salts, which they have recently successfully separated into rare earth oxides.



Management / Board

Donald M Lay, BSc – President & CEO, Director – 20+ years of international experience in public and private venture-capital and project funding. Developed business and raised capital in technology and processing fields. A number of successful investor exits.

David Haber, IDD – Chairman – Business / succession consultant; Honorary Consul General, Republic of Austria. Career in insurance: built, operated and sold benefits consultancy in 2006 to Morneau Shepell (TSX: MSI).

David Shaw, PhD, PGeo – Director – Consulting Geologist, Director of First Majestic Silver (NYSE: AG), First Mining Finance (TSXV:FF), Great Quest Metals Ltd (TSXV:GQ), 30+ years in global exploration and mining finance.

Rod McKeen, LLb – Director – co-founding partner at Axiom Law Corporation, 25+ years practising mining-related securities and corporate law. Formerly partner at Cowling Lafleur Henderson LLP and Montpellier McKeen Varabioff Talbot and Giuffre.

Andy Morden, CA – Director – President & CEO Corvus Energy, Vancouver. 20+ years of operations and finance experience in public and private companies in high-tech field. Formerly with Intrawest Corporation and KPMG.

Tom Arnould, CA – CFO & Secretary – 30+ years in private companies including merger and acquisitions and senior finance roles.



Recommendation: Medallion is a rare earths play with significant upside as providing a critical role in the production and processing of key ingredients vital to permanent magnet materials. Incrementally build a position in Medallion stock. The next milestone that could build momentum will likely be customer orders through Rare Earth Salts and monazite purchase agreements. The company's strategy is straightforward. The shipping of rare earth concentrate to Rare Earth Salts and the successful separation into rare earth oxides is an important benchmark.



Clean Energy & the Electric Vehicle Revolution

EV Motor/Permanent Magnet Rare Earth Stock Portfolio

To summarize our breaking recommendations....here are some highlights:

- after period of stagnation, rare earths prices and stocks are on upward trend
- fueling rise is consensus that EV market have passed an inflection point
- EV battery metals cobalt/lithium have moved - magnet rare earths are next
- Neodymium and praseodymium are key ingredients for permanent magnets
- China is holding more rare earths at home for its own needs
- China could become a net importer over the next decade
- China-US economic conflict could lead to interruption of supply of rare earths

Conservative Portfolio

- 60% Neo Performance Materials (NEO.TO, NOPMF)
- 30% Lynas Corporation (LYC.AX, LYSCF)
- 10% Medallion Resources (MLD.V, MLLOF)

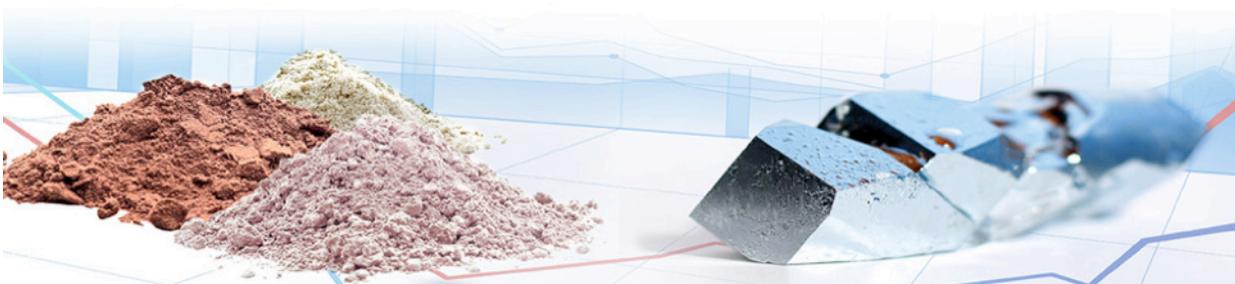
Moderate Portfolio

- 40% Neo Performance Materials (NEO.TO, NOPMF)
- 40% Lynas Corporation (LYC.AX, LYSCF)
- 15% Medallion Resources (MDL.V, MLLOF)

Aggressive/Speculative Portfolio

- 30% Neo Performance Materials (NEO.TO, NOPMF)
- 50% Lynas Corporation (LYC.AX, LYSCF)
- 20% Medallion Resources (MDL.V, MLLOF)

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ASSETS 





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