



SUBMITTED TESTIMONY of

Mark A. Smith
President and Chief Executive Officer
Molycorp, Inc.

U.S. House of Representatives Committee on Foreign Affairs
Subcommittee on Asia and the Pacific

September 21, 2011

Chairman Manzullo, Ranking Member Faleomavaega, and Members of the Subcommittee, thank you for the opportunity to testify before the Subcommittee today and for directing further attention to this topic, which is incredibly important to America's long-term economic and strategic interests.

My name is Mark Smith. I am the President and Chief Executive Officer of Molycorp, Inc., the Western Hemisphere's only producer of rare earth oxides and the largest rare earth oxide producer outside of China. We are headquartered just outside of Denver, Colorado. Our company owns and operates the rare earth mine and oxide manufacturing facilities at Mountain Pass, California. We also have rare earth metal and alloy-making facilities in Tolleson, Arizona, and rare earth oxide manufacturing and metal-making facilities in Sillamae, Estonia.

Let me first note that I am especially pleased to be here discussing this topic with you, given that I spent all of last week in China, meeting with industry and government officials, and speaking on this very subject to an international gathering of Chinese officials and rare earth industry leaders. I also had the opportunity to personally tour the Bayan Obo iron ore mine in the Chinese province of Inner Mongolia, which produces rare earths as a byproduct and is currently responsible for over 63 percent of the rare earth production in the world. According to company officials, this was the first time that a foreigner has ever been allowed to go inside the gate of this enormous facility.

This hearing also is very timely, Mr. Chairman, given what senior Chinese officials relayed last week to me both privately and through their public statements: China "has no intention of remaining the world's major supplier of rare earths and will gradually shift focus to domestic demand." Chinese industry officials also have indicated that tight supplies of rare earths represent an "irreversible" trend, in China's view.

Clearly, this signals China's expectation that it will continue to reduce the amount of rare earths it exports to the rest of the world. It also points to the increasing likelihood of a dramatic shift in the rare earth supply situation – one where China could move possibly from being the world's predominant supplier to a net importer of rare earths.

These announcements comport with Molycorp's expectations. For much of the past decade, our company has been predicting just such a shift would occur by 2014 or 2015.

On the heels of my travels and meetings last week, and informed by more than 25 years in the rare earths industry, I would like to offer some observations to the Members of this Subcommittee on the current global rare earth supply situation. I also will provide some recommendations that are designed to help better position the United States from being completely dependent on China from our rare earth needs.

KEY POINTS

I have three principal messages to deliver to the Subcommittee and Congress today:

First, while China's actions on rare earths may frustrate all of us, I would argue that it is not very productive to spend time blaming China or threatening to launch legal action against China as a means of addressing the current situation in which we find ourselves.

We are absolutely right to seek to understand China's actions and motivations. Those in charge of enforcing international trade agreements certainly need to investigate whether or not these agreements are being upheld. But, ultimately, I believe that our major focus -- as a government and a nation -- should be on rolling up our sleeves and accelerating our efforts to ramp up our own domestic rare earth production capability. We should focus on moving as rapidly as possible to a position where our economy and security interests are no longer tied to declining Chinese rare earth exports.

Second, I believe we can and should take a page from China's own rare earth playbook. They have used their rare earth resources to enormous strategic advantage, particularly as a means of creating jobs for their own people. We should do the same thing. Mr. Chairman, we have the geologic good fortune of having one of the world's richest and largest rare earth deposits at Mountain Pass, California. We have some of the best and most experienced rare earth scientists, chemists, engineers and workers in the world. These assets, coupled with the enormous technological breakthroughs that Molycorp scientists have pioneered, give us the ability as a nation to leverage our own rare earth resources and encourage rare earth-dependent manufacturers to establish operations in this country, creating jobs in the U.S., rather than in China.

The job-creation engine that rare earths have fueled in China can also be a job-creation engine here in the U.S. We have the resources, the technology, and the markets to make this a reality.

My third point is this: it is important to understand that the key to our continuing competitive advantage in global rare earth markets is technology innovation and superiority. Molycorp's

advanced technology is already positioning the U.S. to be the world's lowest-cost producer of rare earth elements beginning next year. New technologies we have developed are also positioning us to be the world's most environmentally superior manufacturer of these materials.

The best thing Congress can do is to encourage continued technological innovation. Key to that effort is maintaining robust research and development efforts in this area, as well as strengthening the nation's graduate and post-graduate educational programs in chemistry, physics, engineering and other fundamental areas of applied science.

THE GLOBAL RARE EARTH LANDSCAPE TODAY

As many Members of this Subcommittee are well aware, China now dominates global production of rare earths, supplying approximately 95 percent of the world's demand. With a position this dominant, the world's current supply is almost entirely dependent on the rare earth materials that China chooses to make available for export.

In recent years, China's growing economy -- and its rapidly growing manufacturing sector -- have increased the demand for its own rare earths. As the Chinese in-country demand has increased, we have seen a steady reduction in its rare earth exports.

This trend should come as no surprise. As an increasing share of China's more than 1.3 billion people improve their standards of living, their demand for products like cell phones, computers, electric bikes, automobiles and the like has increased. All of these products require rare earths.

What *has* been surprising, even to those of us in this industry, is the accelerating pace of China's internal rare earth consumption, and the resulting *rapid* constriction of its exports. For example, prior to 2010, China had consistently reduced its rare earth exports at a rate of about six percent per year. However, in 2010, its export quotas were tightened dramatically -- a full 40 percent reduction from 2009 levels. This created shortages of some rare earths in 2010, and forced prices to increase dramatically.

In 2011, those export quotas were tightened yet again. And, like last year, we are once again faced with global rare earth shortages. This is a critical issue for some manufacturers whose products or technologies require rare earths. There are some companies today that cannot purchase sufficient quantities of the rare earth materials they need at any price.

Another critical trend that we are witnessing is China's efforts to exercise much tighter control over its internal production of rare earths. For example:

- The Chinese government has forced major consolidation of its domestic rare earth industry in the past few years. It is estimated that more than 250 individual rare earth producers have been forced to consolidate into just a handful of major players.
- China is now beginning to enforce in-country production quotas. It recently announced a halt to mining operations at three mines, and has ordered some major rare earth

processors to stop operations. Minmetals, one of the largest Chinese rare earth companies, voluntarily shut down its production due to production quota issues.

- The Chinese government is imposing tougher environmental regulations on the industry. In particular, they are tightening water discharge requirements. This is causing some processing facilities to shut down, at least temporarily, until the required improvements can be made. Chinese processors need more revenue to pay for these improvements, which will increase upward pressure on prices.
- The Chinese government has imposed new taxes on its domestic rare earth producers. The owners and operators of these facilities are becoming more vocal about this and want either the taxes voided or prices to go up. From all indications, it will be the latter.
- Earlier this year, China announced a ban until 2015 on approvals of any new rare earth separation projects.
- China is successfully cracking down on illegal rare earth mining and exports, which have been estimated to amount to as much as 20,000 to 30,000 tons of product per year.

All of these steps will negatively impact China's rare earth production. That will further restrict their export capabilities. This will almost certainly exacerbate the current global shortages of rare earths, at least until non-Chinese producers like Molycorp increase production.

The key point is this: we have been focusing on China's tightening of its export quotas. However, as China enforces its own production quotas, export quotas will become increasingly meaningless.

CHINA'S STRATEGIC INTENT: JOB CREATION

To understand China's actions in this space, it is important to focus on that nation's ultimate economic and social motivations.

As China's former Premier, Deng Xiaoping, famously commented in 1992, "The Middle East has oil. China has rare earths." China recognized this key advantage 20 years ago. Ever since, it has focused intently on rare earths production as a job creation engine.

It is estimated that China's workforce adds more than 10 million new workers every year. In pursuit of millions of new jobs each year, China decided to harness its rare earth resources as a strategic, economic asset. With a population of more than 1.3 billion people, social stability is necessarily one of that government's primary goals. And, nothing creates social stability better than economic growth, opportunity, and jobs.

China has always understood that mining and processing rare earth ore into separated elements would employ thousands of workers. But it also understood that moving into downstream manufacturing of products and technologies that utilize rare earths could employ hundreds of thousands of workers.

Thus, China pursued a strategy that centered on giving manufacturers around the world a choice: if you want China's rare earth materials and products, you can either take your chances on securing rare earths in increasingly tight global markets. Or, you can move your manufacturing facilities to China, where you will not be subject to export quota limitations and you can purchase rare earths at a significant discount to global pricing.

For an increasing number of rare earth-dependent manufacturing concerns, the economic choice became very clear. A large number of manufacturing operations have now relocated to China. And, that trend appears to be continuing.

I would suggest that if China is allowed to go further downstream without any real competition, we not only will be completely reliant on them for rare earths, but also on the many end-use products and technologies that use rare earths. This downstream integration by China is happening much faster than anyone realizes, in my view. This fact underscores the urgency for the U.S. and allied nations to encourage their own growth in the manufacturing of advanced technologies that utilize rare earths.

TAKING A PAGE OUT OF CHINA'S PLAYBOOK

China's government-sanctioned and government-enforced industrial policy is not something that that U.S. can or should try to emulate. But we do have the ability to leverage the power of our own very large and very rich rare earth resources to catalyze manufacturing and job growth here in the U.S. By developing a vertically integrated, rare earth material supply chain, we can give manufacturers a viable option of growing their businesses, and creating jobs, here in the U.S.

This is precisely what Molycorp is focused on doing with our "mine-to-magnets" business plan.

The first step in that plan is to complete what we call "Project Phoenix," our \$781 million modernization and expansion of our rare earth mining and manufacturing facilities at Mountain Pass, California.

With Project Phoenix, we are creating the most technologically advanced, energy efficient, and environmentally superior rare earth processing facility in the world.

Fortunately, the private capital markets have responded strongly to our project, and have provided capital sufficient to meet our needs for both Phase 1 and Phase 2 of Project Phoenix. Thus, we are now fully funded for the modernization and expansion of our flagship facility at Mountain Pass, California. Even better, this highly complex project is on budget and remains on time for mechanical completion in July 2012.

The first phase of Project Phoenix will enable us to take our current rare earth oxide production level at Molycorp from an estimated 5,000-6,000 metric tons of rare earth oxide (REO) equivalent this year to an annual production of 19,050 metric tons or more of REO by the end of 2012.

In Phase 2 of our expansion, we will grow our production capacity to 40,000 metric tons of REO equivalent by the end of 2013.

To put these numbers in perspective, the U.S. is estimated to consume between 15,000 to 18,000 metric tons of rare earths per year. Thus, our production at Mountain Pass, on a total rare earth oxide, or REO, basis, will meet or exceed most of the United States' consumption by the end of next year.

It is important to note that there may always be some rare earths that the U.S. will need to import from other nations, just as we expect to share through exports some of our rare earths with other nations – particularly to our allies in Japan and the EU.

However, let me emphasize this point: the U.S. is on track to achieve a high degree of independence in overall rare earth production by the end of next year, thanks to the men and women who are working tirelessly at Mountain Pass, seven days a week, to restore our domestic production capabilities.

Beginning next year, we will produce all of the 10 rare earth elements – lights, mediums and heavies – that have commercial applications. We also will be producing at our facility in Sillamae, Estonia, the rare metals niobium and tantalum, which have a number of strategic applications as well.

The second step in our business plan is to move beyond the manufacture of separated rare earth elements, in their oxide form, and go further downstream to the manufacture of value-added rare earth products such as permanent magnets. One acquisition we made this past April was of AS Silmet in Sillamae, Estonia, now called Molycorp Sillamae. This facility is one of only two such facilities in all of Europe, and it expands our oxide production capabilities. It also gives us the ability to move from the oxide stage to the metal stage – a precursor to the manufacturing of permanent rare earth magnets.

This past spring, we also acquired Santoku America, Inc., based in Tolleson, Arizona, the U.S. subsidiary of Japan's Santoku Corp. This provided us with both metal and alloy-making capabilities in the U.S.

With these additions, we are now able to produce rare earth materials and alloys across four of the five steps in the full, rare earth mine-to-magnet manufacturing supply chain. Those five steps are these: mining and milling, oxide production, metal making, alloy production, and permanent rare earth magnet manufacture. To launch operations in the fifth stage, permanent magnet production, we are in advanced discussions with several potential partners to create one or more joint ventures that will allow us to produce these highly valuable permanent magnets.

Finally, and most recently, we completed an investment in Boulder Wind Power, a Colorado-based company that is pioneering a game-changing technology for wind turbines. Boulder Wind's innovative engineering design allows for the manufacture of high efficiency direct drive wind turbines powered by rare earth permanent magnets that do not need dysprosium, a rare earth that is in chronic short supply. Not only will this technology breakthrough help to accelerate the

deployment of wind energy turbines that can produce power at an unsubsidized rate of only four cents per kilowatt-hour, but it provides a pathway for large volumes of magnets that will be readily made by Molycorp using rare earths produced here in the USA.

WORLD TRADE ORGANIZATION ISSUES

China may or may not be acting in violation of WTO rules. I am not an expert in this area of the law, and I am not in a position to pass judgment on the legal justification for taking formal action against China in this arena.

However, I believe it is important to consider what may be the practical, real-world outcome of any formal action against China on rare earths.

Because WTO cases generally take many years to adjudicate, initiating action against China may result in that country tightening even further and faster its export quotas to the world. Given that we have no viable supply alternatives, until Molycorp ramps up to full-scale production capacities over the next two years, such a constriction could have very serious impacts on rare earth dependent manufacturers in the U.S. and in allied nations, at least in the short-term.

By aggressively going after China through the WTO, we may end up accelerating the shift of manufacturing operations, and manufacturing jobs, to China over the next several years. And, given that we already face global rare earth shortages today, we may end up forcing some rare earth dependent manufacturers to stop production operations all together.

The law of unintended consequences is one that I believe we cannot ignore when considering the options the U.S. has in the WTO arena.

RECOMMENDATIONS:

Let me offer these action recommendations for your consideration:

1. **Elevate the focus on rare earth issues across the Government.** Japan has spent the last 12 months seeking every way possible to end its dependence on China's rare earths. From exploration projects, to joint production ventures, to recycling efforts, to R&D, they are turning over every stone. The U.S. Congress should pay closer attention to the many different facets of this issue. Today's hearing is a good step in this direction. However, given that rare earth materials are used in so many different products and technologies – clean energy, high tech, communications, national defense, transportation, health care, to name but a few – I would encourage other Committees of Congress to examine the rare earth issue within the context of their jurisdictions.
2. **Focus on promoting private-sector investment in technology innovation.** The technology innovations that Molycorp scientists have developed, and which are being built into our new facility at Mountain Pass, are enabling us to produce rare earths in 2012 at cost of production that will be the lowest in the world. Our production costs on a per kilogram basis will be lower even than that of China. The U.S. government should explore

how it can incent companies to invest aggressively in efforts that give our nation a technological edge. Whether through tax incentives or other mechanisms, the government can play a very constructive role in helping the private sector give the U.S. a continuing advantage in technology.

It is my belief that technology is the ultimate differentiator between Molycorp and China's rare earth industry.

- 3. Strengthen U.S. research and development efforts as well as our graduate and post-graduate instruction in the basic and applied sciences.** What is largely driving China's success in moving into higher value downstream manufacturing is the veritable army of scientists, chemists, physicists, engineers, and others who have been trained to explore new processes, technologies, and applications for rare earth materials. China rightfully boasts of having more than 6,000 scientists and researchers who focus on a daily basis on rare earth technologies and applications. In the U.S., we have but a handful of these specialists – and many of those individuals were trained by, and are now work for, Molycorp. The United States' dearth of institutional knowledge in this area must be reversed if we are to emerge again as a global leader in the production of these critical materials, and the many advanced technologies that they enable. We need to undertake a broader range of research and development efforts in the rare earth materials space.
- 4. Support private sector efforts to recycle rare earths.** Molycorp is working now to develop the capability of recycling rare earths. One area in particular that we feel is ripe for near-term results is in fluorescent lighting, both the standard and compact bulbs. The rare earths that make these high efficiency lights work are relatively scarce heavy rare earths such as europium, terbium, and yttrium. Molycorp is developing the technology to separate the rare earth phosphors from this waste stream into usable, separated materials once again.

A key hurdle to making this recycling a commercial success is finding ways to consistently capture the used bulb waste stream. I would suggest that a great place to start is the federal government's own lighting waste stream. The government goes through a lot of fluorescent lights each year. The government – perhaps through the General Services Administration – should quantify this potential material stream and implement government-wide efforts to ensure that the waste processing of this lighting allows for the recovery of the rare earth phosphors they contain. Molycorp stands ready to assist the government in such an effort in any way we can.

As you can begin to appreciate, this is a complex and dynamic industry that clearly has major implications for the United States' long-term economic and security interests. The current supply and demand situation presents us with a challenging set of near-term circumstances. However, we are in a very good position to determine our own fate.

By remaining focused on what we can do to get our own supply chain up and running, we will not only be in a stronger strategic position, but we also will create an important foundation that can

help to catalyze manufacturing job growth in this country. This is exactly what I think we all need to remain focused on for the next several years.

I thank the Subcommittee for the opportunity to testify today, and I look forward to your questions.

#

United States House of Representatives
Committee on Foreign Affairs

"TRUTH IN TESTIMONY" DISCLOSURE FORM

Clause 2(g) of rule XI of the Rules of the House of Representatives and the Rules of the Committee require the disclosure of the following information. A copy of this form should be attached to your written testimony and will be made publicly available in electronic format, per House Rules.

1. Name: Mark A. Smith	2. Organization or organizations you are representing: Molycorp, Inc.
3. Date of Committee hearing: September 21, 2011	
4. Have <u>you</u> received any Federal grants or contracts (including any subgrants and subcontracts) since October 1, 2008 related to the subject on which you have been invited to testify? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Have any of the <u>organizations you are representing</u> received any Federal grants or contracts (including any subgrants and subcontracts) since October 1, 2008 related to the subject on which you have been invited to testify? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. If you answered yes to either item 4 or 5, please list the source and amount of each grant or contract, and indicate whether the recipient of such grant was you or the organization(s) you are representing. You may list additional grants or contracts on additional sheets. Molycorp in 5-yr. R&D contract with U.S. Army's ARDEC; first-year funding of \$1.8 mill.	
7. Signature: 	

Please attach a copy of this form to your written testimony.