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Global race for Rare Earth heating up

By Melissa Low, Energy Analyst at the Energy Studies Institute, National University of Singapore | 24 October 2011



(Photo Credit: iStockPhoto)

Amid public dissent, the world's nuclear watchdog, the International Atomic Energy Agency (IAEA), has given the green light to Australia's Lynas Corporation's rare earth plant at the Gebeng Industrial Zone, Pahang State, Malaysia, on condition that it has a long-term waste management plan.

The independent expert review of the health, safety and environmental aspects of the proposed Lynas Advanced Materials Plant (LAMP), submitted by a 10-member IAEA expert mission team on 28 June 2011, followed a week-long mission undertaken from 30 May to 3 June 2011.

The LAMP project involves the mining and concentration of rare earth ore at Mount Weld, Western Australia, followed by shipment of the concentrate to a rare earth processing facility in Malaysia, where compounds.

The plant in Malaysia will involve cracking, waste gas treatment, leaching, upstream and downstream extraction, post treatment, utilities, water treatment and residue management.

Key point of contention

This has been the main point of contention between the two countries, with Kuantan MP Fuziah Salleh working closely with her counterparts in Australia's Green Party to pressure their respective governments to be environmentally responsible in their decisions and to not dump potentially hazardous waste in Malaysia.

Malaysia's civil society groups have protested against this plant, with the recent history of Mitsubishi

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5 more questions with Nobuo Tanaka

Chemical's Asian Rare Earth Subsidiary radiation cleanup in Bukit Merah still etched in their minds. The refinery had processed slag from old tin mines-- material rich in rare earth ore--and disposed of it by burying it inside the core of a hill three miles from a forest reserve.

5 questions with CEO of Keppel, Amb Choo Chiau Beng

Reports show that residents in a community of 11,000 are now blaming the company's irresponsible actions for birth defects and eight leukemia cases within five years--after many years with no leukemia cases.

5 questions with Willem van Putten of KEMA

Lynas Corporation has been battling allegations that its plant is plagued by environmentally-hazardous construction and design problems following a *New York Times* headliner "The Fear of a Toxic Rerun" in June this year.

5 questions with Yang Berhormat Pehin, Minister of Energy at the Prime Minister's Office of Brunei Darussalam

A purely technical review

There has been a sharp rise in press coverage on this issue since the IAEA gave its go-ahead. However, most fail to note that the review mission was purely technical in nature, and was meant to deal only with the radiation safety aspects of the proposed project. It did not engage in policy or other types of discussion as these were not within the mandate of the expert review mission team.

5 questions with former Executive Director, International Energy Agency, Nobuo Tanaka

As a result, skewed reports have surfaced over the past months over this matter.

Much has been written already about the misleading nature of the "rare earth" label, which has been said to compound fears of an impending trade war between advanced economies that require such minerals for a wide range of industrial and military production activities. Rare earths are also crucial in the campaign against climate change because they help produce clean energy technologies.

9 billion reasons to address the world's energy challenge now

With China leading the pack, Australia has been keen to get ahead in the global rare earth race. There has been intense competition in the rare earth industry following China's embargo last year, which affected several major economies such as Japan, Germany and the US. Following the dispute, the United States Geological Survey (USGS) revised its estimates of China's rare earth mine production to 50 percent of global reserves, up from the 36 percent estimated the previous year. For perspective, Australia has 1.6 percent of global rare earth reserves.

Age of oil not dead, says UAE Energy Minister

In the US and Canada, exploration efforts to develop rare earth projects surged in 2010, and investment and interest increased dramatically. Economic assessments are currently being undertaken in Wyoming, Idaho, Nebraska and Canada's Northwest Territories.

Arctic energy: Pathway to conflict or cooperation in the High North

Even deep-sea mud could be goldmine

In July, Japanese researchers found that deep-sea mud in the Pacific Ocean could be a potential resource of rare earth elements. Rich deposits in samples taken more than 200km from the Pacific's mid-ocean ridges have accumulated for over hundreds of millions of years at an estimated deposition rate of less than half a centimeter per thousand years.

Asia's fuel of the future: Gas or coal?

Analysts have noted that access to alternative supplies of rare earths could give Japan extra clout with China, particularly in negotiating issues such as the joint development of energy resources near disputed territories in the East China Sea.

Asia's insatiable appetite for natural gas

China's Rare Earth Development Plan

The search for alternative supply sources for the 17 kinds of rare earths is certainly heating up as a result of the move last year by China to place continuing export curbs on rare earth exports, possibly as a move to grow its own clean energy and high technology sectors.

Behaviour, economics and energy: Lessons for Asia?

These developments come as China begins to tighten domestic rare earth mining in an attempt to halt severe environmental degradation, illegal mining and smuggling that have become endemic to the industry. In addition to a new resource tax introduced in April, the new China Rare Earth Development Plan, reported as the first of its kind in 11 years, is designed to control the export of rare earth primary products. It is also set up to encourage the export of new rare earth downstream products, enhance industrial consolidation, crack down on smuggling and illegal mining practices, and set up a national strategic stockpile system for rare earths. Producers will be required to meet the environmental emission standards, or risk being shut down.

Biodiesel in Brazil: Betting on B10?

In Inner Mongolia, China's rare earth leader, Baotou Iron and Steel (Group) Co, Ltd, has also begun reorganising for enterprise-wide integration aimed at unifying 35 separate rare earth smelting projects. Besides allowing for more unified operations and management of the rare earth smelting franchise working system, consolidation would avoid unnecessary competition among companies and associated financial losses.

China's pipelines in Myanmar

Emerging themes in the global oil and gas industry

In China, the key policy goal now is the promotion of regional sustainable and healthy development of the industry. China's rare earth campaign aims to protect the environment and ensure the sustainable

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utilisation of the country's resources.

A bumpy ride ahead

As countries seek to reduce their reliance on China for rare earth supplies, they will face challenges to achieve the full capability needed to refine the oxides into pure rare earth metals. Countries and companies will also face scrutiny over the environmental risks associated with mining rare earths and management of radioactive wastes that the refining processes entail, as in the case of the Lynas LAMP project.

The race to beat China's edge will be a bumpy one, but for many countries, it will be worth their while. Greater cooperation and dialogue between countries are needed to surface complex resource issues and understand how the global rare earth industry is evolving.

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