

Kingsnorth believes Rare Earth Element demand and prices to increase

Dudley Kingsnorth, a professor at the Centre for Research in Energy and Minerals Economics appointed at Curtin University in Perth, Australia and an analyst at the Industrial Minerals Company of Australia (IMCOA), delivered a presentation at the AusIMM 2013 Critical Minerals Conference in Perth, Australia in June. He suggested that global demand for rare earths could increase to 160 thousand tons in 2016 and 200-240,000 tons in 2020 (compared to 110 thousand tons in 2012 and the historical high in 2010, 133 thousand tons). Moreover, Kingsnorth said that he expects the average market price for REE in the long-term to increase to USD\$ 50-70/kg, while 2013 averages have been in the range of USD\$ 30-40/kg (TREO – while lower than prices in 2012, they are almost triple the prices of 2008). Interestingly, the increase value of rare earths comes at a time when gold prices have experienced a roller coaster ride, notwithstanding the substantial fluctuations owing to continuing economic uncertainty. The New York Times has described Kingsnorth's analysis as an industry benchmark.



The key elements of Kingsnorth's projected increase up to the year 2016 are neodymium, dysprosium, europium and cerium, all of which are needed for automation technology as well as polishing powders, FCC catalysts, wind turbines and hybrid vehicles. Kingsnorth does not deviate from other forecasts or analyses, however, which see demand exceeding supply for such elements as cerium, lanthanum (for nickel-metal hydride

batteries) and higher demand than supply for neodymium, terbium, dysprosium, europium and yttrium.

One of the drivers of demand, as noted above will be automation technology, which will require a combined use of different elements. Servo motors need neodymium and dysprosium and the latter element will be highly critical elements in the future use of REE permanent magnets. For the time being, dysprosium, which is a heavy rare earth, will keep demand focused on China. That said, in the present and near future, rare earths have only been produced in four countries. China, Kingsnorth believes, will be less strict with quotas (even if it will continue to overhaul the sector) but it will also continue to push the value-added side of the industry. In recent months, 23 illegal rare earth mines as well as almost 60 processing plants were shut down in China.

This means that, as China continues to tighten regulations and consolidate the supply side, there will be fewer rare earths available for export, raising actual availability concerns about supply that will go well beyond the concerns of the World Trade Organization. China produced about 120,000 tons in 2009 and another 35,000 tons, unofficially, accounting for 95% of the global market. The other producers were Russia, India and the United States. For 2015, Kingsnorth estimates the global supply of rare earths to be in the order of 195000-210000 tons. Despite the various new projects that are expected to come online, the major producers in 2016 – outside of China – will be Mountain Pass (Molycorp), Mt Weld (Lynas Corp) , Indian Rare Earths (IRE and Toyota Tsusho) and Kazakhstan (SARECO and Sumitomo). Kingsnorth sees recycling as also contributing to supply, while Great Western's Steenkapskraal mine in South Africa and Alkane's Mt. Dubbo project in Australia should enter production stage by that time as well.

As for demand, China will continue to dominate with a share of 60%, while the remaining 40% will be split half for the rest

of Asia – including Japan – and the other half in the United States and Europe. The demand pattern will not change substantially in the coming years, however, Kingsnorth suggests that demand amount will increase by 48% and much of the increase will be supplied by deposits outside China. While, he doesn't say so explicitly, Kingsnorth has implied that there is reason for optimism when it comes to the future of those emerging rare earth projects that have been struggling with rollercoaster markets over the past year. The higher demand will certainly require the development of new mining projects outside of China, especially as Beijing has put a stop to the exploration of new rare earths properties and mining licenses. These measures have already shown results. Prices for various rare earths go have started to rise again. Should the offer remain scarce, further price increases can be expected even over the course of 2013.