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Rare earths supply: Current and future situation

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Due to their unique properties, rare earth elements (REEs) are widely used in the fast growing electronic industry and green energy technology, and are regarded as strategic or critical materials in many economies.

China has been the world's leading supplier of REEs since 1990s with a share of 85-95% of global mine production. In 2010 Chinese government made some adjustments on its policies on domestic production and export, which resulted in soaring prices and short supply. Ever since then, the world has seen a surge of exploring and developing activities, which led to two mines in Australia and USA coming into production and 53 advanced rare-earth projects being developed, involving 49 companies, located in 35 regions within 16 countries. As a result, China's share of global mine production declined to 86% in 2013 from 91% of 2012 and stayed that level in the next two years.

The steady falling of price since mid-2011 put great pressure on producers, especially the new comers. In October, 2015, the Mountain Pass mining and separation operations in the United States were idled indefinitely, leaving Mount Weld in Australia the only main producer outside China. Meanwhile, most China's producers showed a good ability to bear the low price, with favourable geological conditions as the major factor for lower cost. It is predicated that China will take 85-90% of global mine production in the next 10 years, with Australia, India and Russia as supplements.

As China removed its quota and tariff on REEs export in 2015, the supply in the international market is abundant. During this year, China exported 31 thousand tons of REEs, an increase of 9% comparing with last year. It is estimated that the overall producing capacity of China is 300-400 thousand tons, which is 2-3 times as much as the global consumption. Obviously if there is no restriction on the production, over-supply will be the normal situation of the REEs market.

In order to enhance its ability to control the market, China consolidated its REEs industry in recent years. At present all the country's mining and refining facilities are owned and operated by 6 companies, which greatly increased the centralization of the industry and provided the possibility of forming a kind of weak monopoly. The operation strategies of the 6 companies will to a large extent determine the situation of the world market.

Though in the next 5-10 years the general market situation will be over-supply, it will be quite different for specific elements. The most abundant elements like cerium and lanthanum will continue to be over supplied and the increasing stockpile is to be a burden for producers. Europium, which used to be the most expensive element, will see its price decline dramatically as demand decrease with fluorescent lamps being substituted greatly by light emitting diodes. The supply of praseodymium, neodymium and

dysprosium will be tight, as magnets sector will expand quickly and continue to be the main drive of REEs consumption. The short supply of dysprosium may occur occasionally.

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