

Metal Events Ltd's 10th International Rare Earths Conference attracted almost 200 participants to Singapore on November 11-13 2014.

Speakers covered a wide range of topics on the global rare earths industry, including a number of presentations that looked at developments in end-use markets for rare earths.

Jean-Claude Steinmetz, Chief Commercial Officer, at Lynas Corp kicked off the proceedings by focusing on the industry's need to develop value and how it would be able to achieve this. He said that there are good growth markets for rare earths apart from in lighting where demand in phosphors is struggling. Demand for Nd and Pr in magnets is growing. However, there is still the fear that further erosion of prices will lead to market uncertainty. The question remains over how supply chain security can be achieved.

Geoff Bedford, President & CEO of Molycorp Inc, reiterated that supply chain security is very important, with the focus on ensuring that rare earths production meets environmental standards and that it is sustainable.

He noted that the magnetic materials sector is coming to the fore and driving demand. Suppliers now need to be much more "material focused" rather than looking at the "heavy versus light" demand scenario which has driven the supply-demand debate for the past few years.

Bedford noted that there is a softening in demand for HREE as there is a reduced per unit need in sintered NdFeB magnets for Dy and Tb. Overall, however, demand for magnets is increasing and this is good generally for rare earths, particularly Nd and Pr.

Speakers concurred that the automotive industry is leading developments in rare earths, with demand for magnets in electric motors seeing good growth, which is driven by the requirement to further reduce vehicle weight.

While magnetics are leading the way, however, there is still a major issue for the industry in achieving market balance, particularly with reduced demand for La and Ce, plus the shift to LED lighting from phosphors, which is resulting in a significant reduction in demand for Y, Eu and Tb.

Kerry Satterthwaite, Senior Analyst at Roskill Information Services, said the impact of the price spike of 2011 was still being felt across the industry. She said that some demand was permanently destroyed as end-users have shifted to using different technologies which are rare earth free. She questioned where the new technologies are being developed that will let rare earths back in.

Looking at developments in the Chinese markets, Hanmei Jiang, Senior Rare Earths Analyst at SMM, spoke of the strong growth for rare earths in magnets (again driven by automotive growth) that China is expected to see over the next four years. SMM forecasts the compound annual growth rate of China permanent magnets output will be 7% in 2014-2018, which will boost demand for Pr, Nd and Dy.

Alexander Pulkert from Siemens AG in Germany told attendees that Dy is the challenge and they want to see heavy RE out of the turbine. At the moment Dy accounts for 1% of the magnet, but is 8% of the cost. Meanwhile, Nd and Pr are 62% of the cost and therefore Siemens needs a long-term price strategy to ensure this is sustainable. He said the gearless drive train has increased reliability

and the D6 turbine will require 3,600kg of magnets, hence the requirement to remove Dy. He said by 2017 Siemens will have a Dy free magnet, noting that break-even occurs at around \$70/kg for rare earth magnets. "We will not pay more than \$65/kg for RE magnets," he said, adding that magnet price stability is key and that Siemens needs to rely on its supply base. "We need to ensure NdPr is available. There are issues with supply from China as their demand is increasing and there is increasing pressure on supply," Pulkert said, pointing out that it is very important for Siemens to have a non-Chinese supply chain.

Bill Cohen, Technology Systems Manager – Phosphors at GE Lighting, talked about the shift to LEDs from phosphors particularly as there are major cost-savings to be made by consumers who do so. There is 15-20% less rare earths used in LEDs than in phosphors. He said the decline in phosphors has been much faster than anticipated. He noted that Y, Eu and Tb usage will continue to decrease significantly as demand falls in phosphors.