

## Optimistic, with Some Uncertainty Ahead

I recently attended two events which form the basis for this article: The Magnetics 2008 conference held in Denver in May and the Dayton Magnetics Seminar in June. Both offered two slightly different views of the permanent magnet world, yet seemed to come to essentially the same conclusion. There are several challenges in front of us as an industry, yet people remain largely confident that we have several good opportunities at hand and we appear to have the resources to handle them.

Our two Magnetics Bootcamps, held the day before the start of Magnetics 2008, were again well-attended. We had 23 attendees for the first Bootcamp and three additional attendees for the second. There seems to be an ongoing need for this type of seminar to help people get up to speed in the technology.

At the conference in Denver, there were several “worlds in collision” scenarios presented in slightly different ways by Walt Benecki, Terry Clagett and Gareth Hatch. Both Walt and Terry discussed the tension between supply and demand for both rare earth raw materials and NdFeB magnets. Extrapolating the trend lines shows that demand will surpass supply on both fronts sometime in the next 5 years. While extrapolation makes mathematicians cringe, it is the forecaster’s only tool. It does demonstrate that we are facing a time of constrained supply and healthy demand, meaning that things cannot continue the way they are today. But apparent solutions to the raw material shortages are on the horizon. The new resources being developed in Canada and Australia and the return to full production of the Molycorp facility at Mountain Pass, now under the banner of Chevron Mining, seem to be an answer to the dilemma. Will these resources be available soon enough? Stay tuned for the answer.



From left to right, Walt Benecki, Scott Tubbs from Quadrant Magnetics and Terry Clagett from WebMagnetics

Gareth Hatch gave some insight on one relatively new application that is a significant component of the strong demand for NdFeB magnets: wind turbines. Unlike the other popular magnet applications like disc drives and sensors where the magnets are small and the units are many, wind turbines use huge amounts of magnets, on the order of a ton per unit, and thousands of units are made annually. In a time of high energy prices and high magnet prices, designers favor taking the one-time hit on magnets in order to minimize the cost of generating electricity over the life of the turbine. At current prices, wind turbines are the least expensive way to generate electricity, and those who make wind turbines are having trouble keeping up with demand for their product. Surely the people who make ferrite magnets are salivating over this business too!



Dr. Jin Fang Liu from Electron Energy Corp.

In early June, we held the Dayton Magnetics Seminar on the campus of the University of Dayton. The seminar consisted of a series of seventeen tutorials, roughly modeled on the old MMPA Users Conferences. Each speaker described the salient characteristics of the materials made by his or her company. In addition, the topics of magnetizing, measuring, and magnetic design were covered and several opinions were offered on how the future for magnets may play out. We had about 35 attendees and there seemed to be general agreement that the seminar was beneficial. The main questions are whether we should do this on a regular basis and, if so, how should it be handled. Again, stay tuned.

One very interesting idea came from Tony Morcos from ECS. He reminded us that ferrite magnets can help a designer achieve a very high percentage of the performance of a comparable NdFeB or SmCo design. That percentage may be as high as 85 to 90%. And it comes without the relatively high raw material price of rare earth magnets. This is a good reminder that energy product is not the only consideration, something that we should all keep in mind.

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