

NdFeB Magnet Prices Should Increase in 2018

By Walter T. Benecki

The global permanent magnet industry is currently facing some exciting growth opportunities. The automotive industry is abuzz over the anticipated growth of hybrid and electric vehicles. In fact, some countries have actually dictated that the internal combustion engine will be banned in a specific number of years! In the face of such proclamations, some experts are questioning whether some of these countries (India, for instance) will actually have sufficient electrical generating capacity to support such a shift.

A lot is at stake for the permanent magnet industry. If Tesla's anticipated growth of their Model 3 electric vehicle meets expectations, that model alone will consume massive quantities of NdFeB magnets. It has been reported that the 500,000 Model 3's initially ordered will consume approximately 600 tons of incremental demand for NdPr oxide. Certainly, a lot of money is being invested in the electric vehicle scale-up, all along the supply chain. Major magnet producers like Hitachi and Shin-Etsu, as well as most of the licensed Chinese producers, have been increasing their capacity to meet future demand. The unknown regarding Tesla is what their 2018 production will actually be. The company is claiming that the current Model 3 production delays are not significant.

It's worth noting that we do not believe that the anticipated success of electric vehicles is necessarily a slam dunk. Recently, we've seen arguments that hydrogen-powered vehicles represent a superior technology. Even if hydrogen technology is proven to have merit, it will have absolutely no impact on the likely explosive growth in electric vehicles over the next few years.

In addition, the magnet industry continues to face the reality that China will continue to dominate the global production of rare earths for a long time to come. It's true that the recent success of Lynas has propelled them to being a supplier of ~10% of current global production, but that may not be enough.

Chinese government policies aimed at restricting or managing rare earth mining, tariffs and other export regulations cannot provide the magnet community a feeling of comfort or security. We have also seen numerous projections over recent years that China will actually be importing rare earths to satisfy the continued surge in their domestic requirements. We believe that this trend will likely materialize over the next few years. In addition, as long as China remains the dominant rare earth producer, unpredictable political rifts between governments always loom as a potential triggering event.

The result is an ongoing concern about future prices of rare earth magnets....and in the worst case, the possibility of significant raw material shortages which could once again ripple through the magnet industry. It's a proven fact that rare earth prices can be volatile.

Raw material prices in 2018 are likely to inflict some pain. Some industry observers are shrugging off 2017's early run-up in rare earth prices. Indeed, there has been a moderate correction in prices during the last few months of the year. However, if you are budgeting for modest increases in raw material prices in 2018, it is recommended that you be prepared to move decisively if excessive price increases resume.

And then there is the ongoing litigation over the validity of a number of Hitachi's NdFeB patents. Hitachi has recently suffered some setbacks in the courtroom, but anyone declaring that Hitachi is "on the ropes" could be seriously mistaken. Hitachi has financial strength, strong legal representation and

a massive patent portfolio. So, we would recommend caution to those who are anticipating an “open market” for NdFeB magnets. Surely, the sustained dominance of Hitachi’s proprietary strengths does represent an interesting future uncertainty. This question is not likely to be resolved in 2018.

Beyond electric vehicles, there are many existing and new applications that will be consuming significant quantities of NdFeB magnets. Global energy conservation initiatives will continue, and this will certainly favor the utilization of permanent magnet motors in a variety of industrial, commercial and consumer applications. It has been recently projected¹ that global demand for five specific applications will reach 53,000 tons of NdFeB magnets per year by 2020: Data Storage, Hybrid/Electric Vehicles, Wind Turbines, Electric Bicycles and Air Conditioning. That’s a significant level of NdFeB magnet demand, and 2020 is right around the corner! We can only conclude that requirements for rare earth magnets will be accelerating at a significant pace over the next few years.

One would think that this projected growth should be favorable for magnet producers. Double-digit growth theoretically favors higher prices, which should translate into improved profitability. However, as we have pointed out in previous articles, large scale consumers of magnets do everything within their power to leverage their attractive volumes to achieve the lowest possible prices. And some in the magnet industry have occasionally exhibited the willingness to quote marginal (low) prices to book what appear to be attractive orders. Sometimes, this strategy may work, but many times this approach has backfired, and in a few cases, has actually led to bankruptcy.

Lastly, we continue to see a number of new start-ups touting the benefits of recycling rare earth permanent magnets. The recycling of NdFeB magnets, either from a fabricator’s scrap or magnets recovered from end products like motors or disk drives, has recently been taken on by a number of start-up recyclers. This writer continues to have reservations regarding the ultimate economic feasibility of recycling NdFeB magnets from end products. Once much of the “low hanging fruit” has been recovered, there is a real question whether these magnet recyclers will be able to achieve a sufficient return on their investment. We do not expect independent recyclers to contribute much incremental rare earth supply in 2018. On the upside for recyclers, the major factor impacting their success or failure will be the market prices for rare earths, so their near-term outlook appears positive.

In summary, global rare earth supply is not expected to keep up with demand in 2018 and we therefore expect price increases during the year. This will impact magnet producers, distributors, magnetic assembly producers, motor manufacturers and magnet recyclers. The good news is that the overall demand for NdFeB magnets will continue to increase at an attractive double-digit pace.

¹ “Worldwide Electrification - Consequences for Permanent Magnet Materials”, Steve Constantinides, Presentation at Ames Laboratory, November 1, 2017.

About the Author - *Walter T. Benecki was president of Arnold Engineering (now Arnold Magnetic Technologies) from 1989-2001 and served as president of the Magnetic Materials Producers Association from 1994-1997. Walt published “The Global Permanent Magnet Industry” in 2017 and he is currently editor of “The Permanent Magnet Industry Newsletter”. Walt has been a principle or strategic advisor for numerous acquisitions, dispositions or joint ventures within the magnet industry. For additional information, visit: www.waltbenecki.com.*



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