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Introduction

China controls approximately 97 percent of the world's rare earth element market. These elements, which are not widely known because they are so low on the production chain, are critical to hundreds of high tech applications, many of which define our modern way of life. Without rare earth elements, much of the world's modern technology would be vastly different and many applications would not be possible. For one thing, we would not have the advantage of smaller sized technology, such as the cell phone and laptop computer, without the use of rare earth elements. Rare earth elements are also essential for the defense industry and are found in cruise missiles, precision guided munitions, radar systems and reactive armor. They are also key to the emergence of green technology such as the new generation of wind powered turbines and plug-in hybrid vehicles, as well as to oil refineries, where they act as a catalyst. (Note: for more in-depth information on the specific uses of rare earth elements, refer to Appendix A).

Over the past few years, China has come under increasing scrutiny and criticism over its monopoly of the rare earth industry and for gradually reducing export quotas of these resources. However, China is faced with its own internal issues that, if not addressed, could soon stress the country's rare earth industry.

This paper is designed to give the reader a better understanding of what rare earth elements are and their importance to society in general and to U.S. defense and energy policy in particular. It will also explore the history of rare earth elements and China's current monopoly of the industry, including possible repercussions and strategic implications if rare earth elements supply were to be disrupted.