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Testimony on Strategic and Critical Minerals Policy: Domestic Minerals Supplies and Demands in a Time of Foreign Supply Disruption
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I would like to thank the Committee for the opportunity to testify on this very timely and very important topic. The subject of critical and strategic materials is one in which I have had a strong interest, both as a materials scientist and in my long career in acquisition of major military weapons systems and technology. Having retired from the US Air Force, I was fortunate, in 2007, to have been asked to chair the National Academies' Committee on Assessing the Need for a National Defense Stockpile. I have since remained active in urging the government and industry to be more proactive on the issues of mineral and materials availability and related topics. I have spoken frequently to representatives and groups in the Department of Defense, the aerospace industry, and the intelligence community, and at major materials and manufacturing conferences. I am also now honored to act as the current Chairman of the National Materials and Manufacturing Board of the National Academies and, as such, remain actively engaged in reviewing research on these topics. I must emphasize, however, that my testimony here today, unless specifically related to published Academy studies, reflect my opinions alone, and not the position of the National Academies.

By way of summary, the Committee on Assessing the Need for a National Defense Stockpile was formed in response to a request from DOD, having been mandated by the House Armed Services Committee. The Academies published the Stockpile Committee results in a report entitled Managing Materials for a Twenty First Century Military. The major conclusions of the Committee were that the National Defense Stockpile was ineffective, that the model used to calculate materials needs was outdated and needed to be replaced, that legislation and regulations were in need of review, that previous studies and recommendations had been ignored, and that the DOD did not adequately understand its own materials needs and had no system in place to determine them. The report concluded that the DOD had not made critical and strategic materials a priority. Additionally, the Committee emphasized the criticality of the US Geological Survey in maintaining accurate mineral availability information. Interestingly, the report highlighted the growing concern and need for DOD to pay attention to the rare earth materials. The DOD, in its April 2009 Report to Congress on this topic, addressed many of the issues raised by the Academy report. To its credit, the DOD suspended sales of many materials pending a thorough analysis of future need, it has taken action to revise its modeling system, and has created a strategic materials management program. What is unclear at this point is any progress by DOD officials on a systematic approach to determining their overall needs for specific materials. This has become especially urgent recently in the clamor for rare earths, but is equally important for all materials needed in US weapons systems.

To the last point, I have written, and spoken frequently, of the need to maintain perspective in our critical minerals planning and add that it is not only the rare earth materials about which we should be concerned, but also a broader range of important critical materials. It is not only materials availability to which we should pay attention and work to mitigate disruption. We must also pay more attention to the importance of critical material recycling and at least not dismiss, out of hand, a consideration of stockpiling, when appropriate. While clearly we must have access to the materials, we also need to have facilities and an ability to process those raw materials once we have them and be able to manufacture a product with the resulting processed materials. Assuring an ability to mitigate supply disruptions seems to be a necessary but obviously insufficient activity if we are then forced to depend on foreign sources of materials processing and manufacturing which could just as easily be disrupted. I should note here that other countries are in fact taking or considering comprehensive measures to strengthen their materials and manufacturing positions. I am most familiar and am impressed by the scope of the work of the European Commission, even to the extent of supporting the formulation of a National Minerals Policy. At home, recent Congressional and Executive Branch interest in and activities in this area are extremely welcome.

Finally, numerous sources of data indicate a growing concern about the relative production of scientists, engineers, and technicians in the US as compared to the emerging economies of China, India, etc. Naturally, I have a particular concern about the materials sciences and related fields and manufacturing engineering and its related fields. In both, the US has given up much of its historical lead. The National Academies have highlighted this issue as well, in a 2005 report entitled The Globalization of Materials Research and Development and, of course, in the widely read and often quoted Rising Above the Gathering Storm. It is of interest that here is a growing recognition by many experts that as processing and manufacturing capabilities diminish, so too do fertile grounds for innovation and creativity.

I am honored by the invitation to testify before the Committee and applaud its interest in taking action on this important issue.