



# Addressing America's 21st Century Minerals Needs Executive Forum Summary Report

June 13, 2011 | Washington, D.C.



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## Executive Forum Summary Report

**June 13, 2011**  
**Newseum**  
**Washington, D.C.**

### Welcome Remarks

**Javier Blas**, Commodities Editor, *Financial Times*

### Panel Discussion

**Steven J. Duclos**, Chief Scientist and Manager, Material Sustainability, *GE Global Research*

**Roderick Eggert**, Professor and Director, Division of Economics and Business, *Colorado School of Mines*

**Frank Gaffney**, Founder and President, *Center for Security Policy* and Host, *Frank Gaffney's Secure Freedom Radio*

**Colin Hayes**, Professional Staff, Committee on Energy & Natural Resources, *United States Senate*

**Hal Quinn**, President and CEO, *National Mining Association*

**Moderated by: Javier Blas**, Commodities Editor, *Financial Times*

### Closing Remarks

**Javier Blas**, Commodities Editor, *Financial Times*





### Introduction

The United States uses vast amounts of critical minerals to meet its needs in manufacturing, national security, product innovation and economic growth. Each year, nearly \$2 trillion is added to our domestic economy by major industries that use mineral materials. Yet, despite vast reserves of key mineral resources, for nearly 20 years the United States has attracted an ever-declining share of worldwide investment in minerals exploration and is increasingly dependent upon imports to meet its needs. Growing demand for minerals worldwide, coupled with their strategic and economic importance, underscores the need for policies that address our 21st century needs.

### Event Description and Panelists

On June 13, a panel of experts met at the Newseum in Washington, D.C. to discuss how public policy is affecting the United States' ability to meet its critical minerals needs to promote product innovation, national security and economic growth. Speaking at the *Financial Times* (FT)-National Mining Association (NMA) Executive Forum were Hal Quinn, president and CEO, NMA; Rod Eggert, professor and director, Division of Economics and Business, Colorado School of Mines; Colin Hayes, professional staff, Committee on Energy & Natural Resources, United States Senate; Frank Gaffney, founder and president, Center for Security Policy and host, Frank Gaffney's Secure Freedom Radio; Steven J. Duclos, chief scientist and manager, material sustainability, GE Global Research; and Javier Blas, commodities editor, *Financial Times*.

### Opening Remarks

The Executive Forum was opened by Javier Blas, whose remarks focused on the importance of minerals and metals globally, highlighting the increase in demand, on the one hand, and the constraints in production, critical infrastructure and human resources on the other. "The situation is getting more complicated because the demands are huge, extraordinary. The global population increases; we get richer, and developing countries such as China, India, Brazil, Saudi Arabia and others see an increase on the population, but most importantly on the size of the middle class" Blas stated, adding that "suddenly, they are demanding more refrigerators, cars and other goods" and this will shape the mining industry for the next few years. "It is not only the increased demand, but also the constraints to produce those metals," he observed. Blas pointed out that "the mining companies are not only going to need to produce and extract the metals, but they will also need help to transport them, and this is going to be a critical challenge." Referring to the human resources challenge, he stated: "when we look at the future of the mining industry in the United States [and worldwide] we need to address the challenge of educating a new generation of engineers, of geologists, of executives who can run these companies. The average age of a mining engineer in the United States is around 50-55 years old and this is just really bad news for the industry."

Blas also referred to the recent use of metals as a political tool, alluding to the implications of key metals being highly concentrated on single producers, citing as an example the dispute between China and Japan over rare earth minerals.

### Minerals and the U.S. Economy

Following the opening remarks, the panel addressed several key issues, namely the state of U.S. mining and the importance of minerals to the economy, the opportunities and challenges that come with development of these resources, the role of public policy and legislation, the relevance of critical minerals to national security, and the opportunities for collaboration between the public and private sectors and within the private sector.

First, the panel discussed the role of minerals and their importance to the U.S. economy. Quinn (NMA) started by revealing statistics on the state of minerals mining in the United States. He stated that "the amount of raw materials produced by U.S. mining in 2010 was valued about \$64 billion" and "that there's another \$15 billion in this sector that is extracted through recycling." He added that "there are about another \$500 billion in intermediate products, which is later translated into more than \$2.1 trillion in finished products in the United States, which is about 14 percent of our GDP." Although these figures highlight the important role that mining plays in the overall U.S. economy, it is important to note that by several measures—including amount of capital versus value added, investment, and budget for expenditures and future exploration—the United States is not living up to its full potential.

Referring to the consequences of underinvestment, Quinn pointed out that "the United States is twice as import dependent on critical minerals today as we were about 15-20 years ago. He continued, noting that while 15-20 years ago, Americans were 100 percent dependent on only nine critical minerals, today, we are 100 percent dependent on 18 critical minerals, and 50 percent or more dependent on 42 critical minerals. He also stressed that the regulatory burden is an impediment to the development of the full potential of mining in the country, stating that "in the United States, it takes almost 10 years to get a project through the permitting system. If investors can take that capital, go to another country, and get these permits in two years, they will clearly have a much earlier return on their investment."

### Challenges Facing U.S. Minerals Mining

Eggert (Colorado School of Mines) then reflected on what he considers to be the main impediments to the development of the full potential of minerals mining in the United States. He stated that the first is "the lack of public investment in the sorts of things that the private sector alone will tend to underinvest in—pre-competitive research throughout the material supply chain, starting with geologic information and on up through material science, materials engineering—but also including public investments in education and in the basic information that helps us understand geologic potential and market conditions." The second is "the challenge of efficiently and appropriately balancing and weighing the commercial, environmental, and social dimensions of mineral development." Eggert specifically referred to the processes—including regulatory approval—that are in place to allow stakeholders to weigh these dimensions.





### Political Discourse on U.S. Minerals Mining

When asked about the view of the policy and lawmaking community on the importance of minerals mining in the United States, Hayes (United States Senate) observed that “there is a great deal of interest evidenced by the number of bills introduced and by the number of hearings that are being held.” Hayes added that “what is unique and somewhat refreshing about this topic is that there has not been as much of a partisan divide associated with it,” as the technologies that are considered next generation and more efficient and cleaner, rely entirely on minerals to exist.” In agreement with his fellow panelists, he referred to the permitting process as one of the areas that requires action and mentioned Sen. Murkowski’s efforts in this regard. According to Hayes, when mining opportunities in the United States are passed over due to the years-long permitting process and delayed return on investment, “the projects do not just not happen here, they happen somewhere else, and they happen somewhere else where the [more than 30 federal and state and local regulatory] programs that we have in place to protect the environment, in many cases, just do not exist. You are not only offshoring the production, you are offshoring the environmental impact.” He stated, “I think that there needs to be a conversation about environmental protection achieved through setting strict standards, and if operators are capable of meeting them, then it would seem to make sense to allow them to do business and invest in the United States. And if they are not, then I think they should look elsewhere or not be operating at all. The delays—not the inability to meet standards—are what is really standing in the way, and 10 years is far too long.”

### Minerals and National Security

The panel then debated the national security consequences of U.S. dependence on foreign sources of metals and minerals. Gaffney (Center for Security Policy) pointed out that minerals could not only be used as political weapons (or as diplomatic leverage), but also as strategic weapons. The policy approach in the United States, in his opinion, seems guided by a different set of rules than those of the rest of the world. “Every country on the planet, or in some cases, groupings of countries, like the EU, is pursuing what is at the very least, mercantilistic policies, maybe nationalistic, or even colonialistic, as is the case of China. These countries are not approaching this issue in a way that is conducive to have the kind of confidence that we have as a country and as a defense department, most especially, that we will always have access to whatever it is we need from wherever it is we get it at the lowest price.” In Gaffney’s view, the United States cannot safely depend upon these foreign sources of supplies, especially for products that are vital to national security, as well as other parts of the nation’s economy, like the energy sector, health and so many others. He added that “this problem has been with us for some time. We have compounded it by our indifference to the dangers, the vulnerabilities associated with dependence on unreliable, even hostile nations, and it’s something we have got to remedy.” Gaffney concluded “there is an absolutely pressing national security argument, as well as for the larger economy that we do have.”

The panel went on to analyze the options that manufacturers have when a material is identified as being at risk and the scope and potential for private/public and private/private collaborations. Duclos (GE Global Research) told the Forum that “when a manufacturer recognizes a challenge, there is a series of strategies that can be

taken to solve this issue. One that is very important to NMA is developing new sources of materials, and this is a very important part of the solution equation, but there are others.” These include the development of manufacturing processes that use materials more efficiently, recycling and substitutions, including partial substitutions, whole substitutions and system substitutions. In considering solutions, a company will realize that there is often more than one way to satisfy a need. Duclos pointed out that “the very start of that process is understanding where the challenge is,” adding that when faced with these options, the role of government in doing pre-competitive research is essential in helping companies decide the best options.

Finally, the panel examined the scope of private/private collaboration with end-users, Quinn noted, “I do see some more strategic partnerships looking out ahead. I have already seen some of those come down in terms of the value-add part.” With reference to private/public partnerships, Quinn stressed “a sense of urgency by the government to get the business community involved and to collaborate on planning, gathering information and having the commitment to do something about it.” Gaffney then referred to a different kind of public/private partnership that is operating to exacerbate the concerns that he had described, referencing the Chinese, “saying that if you want to have access to their rare earth minerals, you have to bring your production capacity to China and then you do not have to worry about quotas for exports.”

### Conclusion

After taking questions from the floor and reflecting on a series of topical issues—from environmental matters and stockpiling to rare earth metals and options for addressing increasing domestic supply—the Forum drew to a close with Quinn’s reflection on the discussion: “The United States has potential,” he said, stressing again the need for a thorough review of policies that may be hampering the nation’s ability to perform to its potential in terms of minerals production.

Quinn said that a more robust domestic mining industry ultimately depends on “better efficiencies in the regulatory process and access to where those minerals are located here in the United States.” In closing, Quinn emphasized that the ability to mine U.S. minerals competitively would generate jobs, fuel the supply chain of domestic manufacturers and add value to the U.S. economy.





**Javier Blas**  
Commodities Editor  
*Financial Times*

Javier Blas was appointed Commodities Editor for the *Financial Times* in September 2010. He was previously the Commodities Correspondent. He covers the price of natural resources such as crude oil, copper, wheat and coffee, and the political, economic and social implications of commodities.

Previously, Mr Blas reported on the international economy, focusing on OPEC, oil markets and the impact of oil prices on the economy for both the *Financial Times* and the Spanish business daily *Expansion*. He has reported on these subjects since 1999.

Mr Blas was born in Spain and studied journalism at the University of Navarra, Spain, as well as political communication at Sheffield University. He is fluent in English, Spanish and French.

He has won several journalism awards for his coverage of oil, and frequently appears on national and international TV and radio.



**Dr Steven J. Duclos**  
Chief Scientist and Manager, Material Sustainability  
*GE Global Research*

Dr Steven J. Duclos is a Chief Scientist at the General Electric Global Research Center in Niskayuna, New York. He manages GE's Material Sustainability Initiative. This initiative addresses GE's risks in the availability and sustainability of the company's raw material supply. This includes the development of a broad-based element-by-element assessment of the company's material risks. This quantitative assessment is based on the National Research Council's Critical Minerals Assessment of 2008, modified to be relevant to a manufacturing company. The results of this assessment are used to develop R&D priorities at the material, manufacturing and system levels. These R&D projects address the broad base solutions to material sustainability issues and support recycling, reduced use, and substitution of lower-risk materials.

From 2000 to 2008, Dr Duclos managed the Optical Materials Laboratory, also at GE GRC. The laboratory is responsible for development of advanced materials for a broad spectrum of GE businesses, including its Lighting and Healthcare businesses. From 1994 to 2004, Dr Duclos served on the Executive Committee of the New York State Section of the American Physical Society. Prior to joining the GE Global Research Center in 1991, he was a post-doc at AT&T Bell Laboratories in Murray Hill, New Jersey.

Dr Duclos holds 34 U.S. patents and has published 30 technical papers. He received his Bachelor of Science in physics in 1984 from Washington University in St. Louis; Master of Science in physics from Cornell University in Ithaca, New York, in 1987; and PhD in physics from Cornell in 1990.



**Roderick G. Eggert**  
Professor and Director, Division of Economics and Business  
*Colorado School of Mines*

Roderick G. Eggert is Professor and Director of the Division of Economics and Business at the Colorado School of Mines, where he has taught since 1986. Previously, he taught at Pennsylvania State University and held research appointments at Resources for the Future (Washington, D.C.) and the International Institute for Applied Systems Analysis (Austria). Between 1989 and 2006, he was Editor of *Resources Policy*, an international journal of mineral economics and policy. His research and teaching have focused on various aspects of mineral economics and public policy, including mineral exploration, metal demand, mining and sustainable development, mineral and metal markets, and critical minerals and materials.

He received the 2010 Mineral Economics Award of the American Institute of Mining, Metallurgical and Petroleum Engineers. He chaired the National Research Council committee that wrote the 2008 book *Minerals, Critical Minerals, and the US Economy* (National Academies Press) and served on the study committee that prepared the 2011 report *Energy Critical Elements: Securing Materials for Emerging Technologies* (American Physical Society and the Materials Research Society).

Professor Eggert has a Bachelor of Arts in earth sciences from Dartmouth College, a Master of Science in geochemistry and mineralogy from Pennsylvania State University, and a PhD in mineral economics also from Pennsylvania State University.



**Frank Gaffney**  
Founder and President, *Center for Security Policy*  
Host, *Frank Gaffney's Secure Freedom Radio*

Frank Gaffney formerly served as the Assistant Secretary of Defense for International Security Policy during the Reagan administration, following four years of service as the Deputy Assistant Secretary of Defense for Nuclear Forces and Arms Control Policy. Previously, he was a professional staff member on the Senate Armed Services Committee under the chairmanship of the late Sen. John Tower, and a national security legislative aide to the late Sen. Henry M. Jackson.



### Colin Hayes

Professional Staff, Committee on Energy & Natural Resources  
*United States Senate*

Colin Hayes returned to the Senate Energy & Natural Resources Committee as Professional Staff in 2007, where he is now responsible for the climate change, CO<sub>2</sub> sequestration, clean energy finance and mining portfolio under Ranking Member Lisa Murkowski, R-Alaska. Previously, Mr Hayes served as Legislative Assistant to Sen. Craig Thomas, R-Wyo., for energy and environmental issues. Prior to that, he held a number of positions with Sen. Pete V. Domenici, R-N.M., both in his personal office and on the Energy & Natural Resources Committee from 2003 to 2006.



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### Hal Quinn

President and CEO  
*National Mining Association*

Hal Quinn is President and CEO of the National Mining Association (NMA). NMA is the national trade association for U.S. mining and represents coal, metal and industrial mineral producers, mineral processors, equipment manufacturers, and other suppliers of goods and services to the domestic mining industry.

As President and CEO, he directs the association's public policy efforts before Congress, regulatory agencies and the White House and sets the association's strategic agenda for media relations, grassroots communications and political involvement.

Mr Quinn brings more than 20 years of experience to his current position. He has represented mining's interests before the executive, legislative and judicial branches of government in a number of positions, including as NMA's Executive Vice President, as its Senior Vice President for legal and regulatory affairs and as General Counsel. He was General Counsel of the National Coal Association prior to the formation of the NMA through the merger in 1995 of the American Mining Congress and National Coal Association.

Mr Quinn serves on the board of directors of the American Coal Foundation, the National Energy Foundation, the United States Energy Association and the Rocky Mountain Mineral Law Foundation.

Mr Quinn is a graduate of Denison University and received his law degree from Wake Forest University.



**The National Mining Association (NMA)** is the voice of the American mining industry in Washington, D.C. NMA is the only national trade organization that represents the interests of mining before Congress, the administration, federal agencies, the judiciary and the media. Our membership includes more than 325 corporations involved in all aspects of the mining industry including coal, metal and industrial mineral producers, mineral processors, equipment manufacturers, state associations, bulk transporters, engineering firms, consultants, financial institutions, and other companies that supply goods and services to the mining industry. NMA provides a forum for all the diverse segments of the mining industry to come together and advocate public policies designed to protect and expand opportunities for domestic mining.

NMA is located in new headquarters at 101 Constitution Ave. N.W., Suite 500 East, across the street from the U.S. Capitol Building in Washington, D.C., and can be reached at +1 202 463 2600. To learn more about minerals, visit [www.mineralsmakelife.org](http://www.mineralsmakelife.org).