



Time for change

Materials-manufacturing disconnect will bite the world's biggest economy



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Barack Obama's recently announced initiative to boost domestic high-tech manufacturing should be accompanied by legislation to bring mining project permitting into the first world. A failure to do so would lead to a long-term loss of manufacturing market share that is likely to prove crippling for the US economy.

Obama last month announced a co-ordination of public and private resources to "strengthen the manufacturing sector, boost advanced manufacturing, and attract the good paying jobs that a growing middle class requires".

The president named a consortium of businesses and universities charged with leading a manufacturing innovation institute for next generation power electronics, which will be backed by an initial US\$140 million of public and private funds. Two more such institutes are planned for digital manufacturing and design innovation, and lightweight and modern metals manufacturing.

In his speech, Obama promised to continue the growth in manufacturing seen in the past five years

and "use his executive authority to get things done". If he is to be successful, he will need to apply a similar policy and attitude to the domestic mining sector.

US mining and manufacturing are fundamentally linked. The mining industry produces some US\$80 billion in raw materials each year, which the manufacturing sector uses to generate US\$2.4 trillion, or 15% of US GDP. The manufacturing industry's growth in recent years is partly down to the explosion of cheap energy from shale gas and partly because of rising wages in emerging economies such as China, which have relied on the cheap manufacturing of low-value products to grow.

However, this situation is changing. Emerging Asian economies, keen to avoid a repeat of the 1990s, are looking to meet the socioeconomic demands of their people by moving up the value chain and manufacturing more sophisticated products.

This means encroaching on first world manufacturing powerhouses, chiefly the US, and competing for the raw materials – or even restricting the supply of certain minerals if they are major producers – needed to make many of today's high-end electronics, machinery and medical equipment. The days when US manufacturers cheaply imported 50% of their raw material needs are disappearing.

Policy alignment ... future needs of the US manufacturing industry likely to include domestically sourced minerals and metals, as well as cheap energy

Insight: Policy

In a recent PricewaterhouseCoopers survey of first world manufacturing chiefs, 70% cited supply of raw materials as a major concern. As such, manufacturers have been firmly behind the mining industry as it campaigns for US legislation to be overhauled in order to increase domestic supply.

Digging for answers

The current US system in which a mining project takes seven-10 years, on average, to be fully permitted should be a source of embarrassment for the world's greatest economy. It is a system National Mining Association chief executive Hal Quinn describes as "duplicative and lengthy". "We have a world-class mineral resources base but a third-world permitting policy," he said. "Permitting at state and federal level overlaps considerably. They are looking at the same aspects of the permit and doing it separately."

A by-product of the lengthy, multi-tiered system is that opposition groups, mainly from the environmental lobby, have several opportunities to disrupt due process. Quinn cited Australian and Canadian permitting regulations, which were no less rigorous but had two-year timeframes. He said the permitting time-frame had made the US uncompetitive in the eyes of mineral companies.

California ranked below Burkina Faso and Turkey at number 56 of 96 countries or provinces surveyed for the most recent Fraser Institute policy potential index. Australia's worst placed state was 12 places higher and Canada's worst performer another seven places higher again. But there is hope. The House of Representatives signed the bi-partisan National Strategic and Critical Minerals Production Act of 2013 and a similar piece of legislation is waiting in the Senate.

The Act aims to ensure efficient, timely and thorough permitting without diluting the country's strict environmental protections.

Quinn hopes more predictable permitting will win back investment in both technology and mineral development that has "thrived elsewhere for decades, creating high-wage jobs and providing reliable supplies of minerals for domestic industries".

If the US procrastinates on this legislation or implements a half-measure, the consequences could be dire.

Many of the high-tech industries Obama is seeking to stimulate require not only traditional industrial metals currently mined in the US, but a host of lesser known elements such as those within the lanthanide series (more commonly known as the rare earth elements) that the US has neglected. Some of the US' emerging manufacturing rivals, primarily China, have

existing production bases for these elements. Chinese REE mines were once a source of cheap raw materials for high-tech neighbour, Japan, as well as the US, but China is now increasingly consuming these metals in its own burgeoning high-end manufacturing sector.

It follows that the manufacturing centres for high-tech products will migrate toward the places best equipped to supply them.

The embryonic stages of this phenomenon are already underway and China, home to 95% of the known REE reserves, has adopted an REE marketing policy to speed up that process by rewarding local buyers with lower prices. This makes economic sense and could provide a lead for other emerging markets. Brazil, for example, has more than 90% of niobium reserves, which are crucial to the military and aerospace industries as an ingredient in superalloys.

Other countries, principally the remaining BRIC nations, are acutely aware of their need for strategic minerals and have been investing in supply for at least half-a-decade. Meanwhile, some African countries, as well as Indonesia, have been legislating to build domestic manufacturing sectors. Even Brussels has outlined a list of 'critical materials' and introduced a change in EU policy to secure future supply. If the US cannot supply its manufacturing sector, its manufacturing sector will up sticks.

Tick, tock, boom

Michael Silver, chief executive of high-end minerals supplier American Elements, said if the US could not ensure its supply of these critical materials the demise of its manufacturing sector was inevitable and with it, its position at the top of the economic tree.

"I don't think there's an example in the history of man where, in order to support an economy on the scale [of the US], a country hasn't produced a huge amount of product," he said. "The UK had the industrial revolution, Rome was a centre for trade – you can't just survive on previously created wealth."

"There is a time frame on this. In the short term we can stumble along and pretend this isn't an issue but in the future when we realise we have a serious problem, it may be too late."

Exactly when it will be too late is unknown. There is an argument that, based on the timeline to production for major mining projects and the speed at which technology is moving, the critical point may come sooner rather than later. Even if legislation was passed tomorrow and attracting early stage investment was no longer an issue, it would be 10 years before the next generation of US projects was running at nameplate capacity.

Quinn insists politicians in the US are aware of the issue and the time has come to act. "There's clearly an awareness [of the issue], [but] it's about generating the political momentum and the courage to move forward with real solutions, rather than continuing to study the problem."

That solution starts with pushing the National Strategic and Critical Minerals Production Act of 2013 through the Senate. The problem has been identified and the tools to fix it are within easy reach. It is time for Obama to become the man of action he has promised to be and put the two together. Or face the consequences. ▼

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