

Defense Manufacturing: A Crisis in the Making

June 2010

by Lt. Gen. Lawrence P. Farrell, Jr., USAF (Ret)

Defense manufacturing is like the weather. Everyone talks about it, but no one does anything.

This may seem like an exaggeration, but it is not, especially when defense manufacturing issues are coupled with manufacturing concerns writ large. In fact, it is almost impossible to examine the defense industrial base without including the issues that affect overall manufacturing in the United States. One may thus view manufacturing in the larger context as a national security issue, with defense manufacturing being a large component therein.

A recent Defense Science Board Report titled, “Creating a National Security Industrial Base for the 21st Century: An Action Plan to Address the Coming Crisis,” concluded that Defense Department policies actually impede the transition to an affordable military force for the 21st century. Current policies don’t facilitate development or deployment of affordable, innovative systems. Government acquisition policies, the study said, will not produce the required competitive, responsive, efficient and innovative industrial base.

The NDIA Manufacturing Division has identified six issues that demand attention.

The first issue is the need to recognize that U.S. firms now have incentives to manufacture domestically and keep jobs at home. High U.S. productivity rates and improvements in advanced manufacturing technology — coupled with the increasing costs of transportation — provide strong arguments against offshore manufacturing.

Next is the issue of foreign and domestic environmental policies. An NDIA White Paper, “Maintaining a Viable Defense Industrial Base,” lays out the dangers of global manufacturing standards, such as the elimination of lead-based solder and hexavalent chromium corrosion coatings. In the case of solder, the substitute process is much less reliable. Also, the United States is increasingly unable to obtain replacement materials

and parts. The solution demands focused investment in the development of alternative materials that offer performance equal to or better than the ones replaced.

Unstable budgets impede industry's ability to plan and budget. Uncertainty creates risks for contractors. The inability to see predictable, reliable funding streams prohibits business case analysis for investment decisions and work force stability. If funding projections are not predictable, industry will opt for lower risk approaches. Skill development and technology investment will suffer as a result.

Another critical issue is the need for steady, long-term access to affordable raw materials. The Government Accountability Office concluded that the Defense Department lacks a consistent, department-wide framework to monitor its supplier base. This vulnerability is particularly salient in strategic materials such as titanium, cobalt and rare earth materials, which have major applications in advanced weapons systems such as smart bombs, night-vision goggles and radar. Today, China produces 97.3 percent of the world's supply of rare earth minerals; Russia produces 1.6 percent, while the United States produces only 1.1 percent. Much work needs to be done on stockpile adjustments and establishing a federal-level working group.

Shortage of skilled labor is another well-known concern. The U.S. education system is failing to produce the technically skilled work force that is demanded by an advanced, world-class manufacturing industry. While a globalized defense industry is a reality, there is no excuse for not having the domestic skill base and technical ability to understand the application and operation of technologies we buy in the global marketplace. More federal leadership is needed in support of science and engineering education and scholarships.

These problems are exacerbated when administration leaders lack business experience of the type that leads to an understanding of requisites such as meeting payroll, making investments in advanced technology and manufacturing, and competition. Recently we have heard pronouncements that the defense industry can surge to meet almost any need on an emergency basis. This ignores the reality of present day access to the special materials mentioned above as well as the complex nature of modern weapons systems and associated manufacturing processes.

Also of note is that, in the defense sector, if the government doesn't fund a particular

system, industry will abandon the effort. Work force and resources will move on to other funded programs. The segment that is not funded will eventually wither and industry will lose that capability. One worrisome example is that for the first time in decades, the U.S. defense industry has no fighter plane design team in operation. How long will it take for the United States to lose the capability to produce “best in class” fighters?

Although there have been many studies of industrial matters, none has produced a comprehensive overview of defense manufacturing issues. Also, much of the reporting has been anecdotal, and no study has compiled a list of manufacturing and process vulnerabilities such as single-source suppliers. A cooperative study between government and industry needs to be done.

In summary, manufacturing is too important to treat it as business as usual. Manufacturing accounts for 12 percent of the nation’s Gross Domestic Product and 10 percent of employment. When in connection to consumption of materials and inputs from other sectors, it accounts for 30 percent of GDP. What is needed is a national manufacturing strategy. The Defense Department should take into account the manufacturing industrial base in its budgeting process, and acknowledge that increased federal investments must be made in advanced manufacturing technology. The manufacturing squeeze is coming. Whether this results in a crisis is still a choice that we can make.