



DOD photo by Glenn Fawcett

Industrial Base on the Edge

By John A. Tirpak, Executive Editor

Sequestration is imperiling what's left of the Arsenal of Democracy.

Budget sequestration is pummeling the defense industrial base, accelerating its contraction. Continuing uncertainty about defense spending and the evaporation of new programs mean more layoffs and hiring freezes are coming. The US could lose its combat edge in some critical areas of designing and manufacturing unless action is taken, but with little money to spend, the Pentagon must be extremely selective in how and when it will intervene to save crucial suppliers.

Defense Secretary Chuck Hagel, laying out sequestration's consequences in a late July press conference, said if the spending limits roll on into Fiscal 2014—which starts this month—they would trigger “a decade-long modernization holiday.”

The US military would not be able to replace obsolete or worn-out systems,

“many of which are already near the end of their service lives,” Hagel said, and the nation could soon find itself overmatched by better-equipped adversaries.

“We ... have to consider how massive cuts to procurement and research and development funding would impact the viability of America's private-sector industrial base,” he warned.

Adm. James A. Winnefeld Jr., vice chairman of the Joint Chiefs of Staff, echoed Hagel's remarks in the press conference, saying, “We have to keep our industrial base alive.”

Before adjourning for its August recess, Congress showed little interest in undoing sequestration, and senior Pentagon officials could guess why. Army Chief of Staff Gen. Raymond T. Odierno told reporters earlier in the summer that in his dealings with members of Congress,

none reported being deluged with letters from constituents complaining about idled military units, plant closings, or layoffs, so the members didn't feel any urgency to act.

Rep. Adam Smith (D-Wash.), ranking member of the House Armed Services Committee, offered his perspective at an August hearing.

The appetite to reverse sequester, he said, is “lessening instead of growing around here” because “the sky didn't fall. The economy didn't completely collapse when sequestration happened.”

He likened the circumstance to the classic tale of the frog that boils to death in a slowly warming pot.

Sequestration cuts would “have a devastating impact on the industrial base,” Smith asserted, adding, “by ‘industrial base,’ I mean jobs. I mean manufactur-

Defense Secretary Chuck Hagel and Adm. James Winnefeld Jr., vice chairman of the Joint Chiefs, lay out the cost of continued sequestration. Industry would be hit hard.

ing jobs, good jobs that really help our economy.” While those imperiled jobs are defense-related, he said, they “build skills and expertise that then helps us in the commercial sector as well. We would lose that also.”

Elana Broitman, the Pentagon’s chief of manufacturing and industrial base policy, said she thinks she understands why there isn’t more alarm about the situation. For one thing, big aerospace companies have been doing well for some time, and even in the last few weeks, their financial reports have been “rosy,” she said in an interview with *Air Force Magazine*. That’s because the bad news in defense has been offset by the good news in higher demand for their commercial products. The predicted calamity of waves of unemployed aerospace and defense workers hasn’t come true—yet.

However, “it’s coming,” Broitman said. “And it’s really next year that we’re going to see some big fallout.” The delayed reaction has to do with the inherent slowness of the defense procurement process, she explained: Canceled orders and deferrals of contracts from last spring and earlier won’t start affecting companies for a few months, as they work off existing backlogs. Then—especially if sequester rolls on—the pink slips will come.

Sector by Sector, Tier by Tier

“The reality may be a little slow to catch up,” she said.

Moreover, big contractors have seen this situation coming and have taken steps to prepare, she said: They’re reducing overhead, “doing some layoffs,” closing facilities, and tightening up wherever possible. The “unfortunate” side effect of

their being good managers, she said, is that there’s not as “stark of an impact” to point to, illustrating the danger to the industrial base, even though the alarm needs to be sounded.

Broitman worries that because big companies have healthy bottom lines right now, other decision-makers in Washington will think “we’re all, communally, off the hook.” It’s blunting the “broader public pressure or congressional review” that “the problem may not be as sharp right now, when it needs to be sharp.” Broitman reported that the pace of congressional contacts to her office hasn’t increased much in recent months.

Members of the Aerospace Industries Association are already feeling the bite of sequester and the broader defense downturn, AIA President Marion C. Blakey said in an interview.

“We are seeing our supply chain very negatively impacted,” she said. Citing an unpublished June AIA survey of member executives, she said 88 percent reported having been affected by defense budget cuts; 84 percent have seen reduced sales or profits; and “100 percent are expecting negative impacts as this goes forward.”

Moreover, 50 percent of those surveyed said they’d already resorted to hiring freezes or layoffs, and 60 percent said they’ve reduced production. “Even we were a little bit taken aback” by the numbers, Blakey admitted.

While the major aerospace companies have the cushion of their commercial lines to help soften the defense downturn, smaller companies in the lower tiers of supply may not be so lucky. If they rely on just a few defense contracts—or just one—they may not be able to ride out the deeper austerity measures that are coming and may leave defense work or go out of business. If they provide a highly specialized and key capability, that’s a serious problem.

This was not unexpected, and Broitman said the Defense Department has been trying to prepare for the situation for a few years now. DOD undertook what it called its sector-by-sector, tier-by-tier, or S2T2, review of the industrial base over the last two years, looking for single-point-of-failure specialties whose exit from the supply base would knock out a number of critical defense projects.

An F-35 takes on fuel from a KC-135 tanker during a test flight over the Pacific Ocean. A long hiatus is expected between the F-35 and whatever comes next.

Lockheed Martin photo by Matthew Short





Lockheed photo by Alan Raddecki

contracts, “so the US production line doesn’t disappear and we don’t have to go overseas, where that really could be the noose around our neck on that system,” Broitman said.

“You can get relatively creative” with these interventions, she continued. In a recent case, DOD allowed a contractor in financial distress, to “use our assets—which we were eventually going to do anyway—to collateralize some debt to tide them over.”

The ManTech (Manufacturing Technology) program broadly allows DOD to invest in production capabilities to create or maintain a US capability, to make production more efficient and possibly create competition, all with the idea of realizing an ultimate return on the investment.

In some cases, there’s no point in trying to “beat the globe,” she said, and retain a US production base for a product widely and cheaply available worldwide.

There are “different tools we can use,” she said, “but our overarching goal is definitely to save those critical capabilities” while avoiding the unnecessary use of taxpayer dollars “especially in this [financial] climate.”

Broitman noted that one of the signs that DOD takes the industrial base seriously is the fact that a number of efforts like ManTech and DPA III have recently

Lockheed Martin’s “Skunkworks” in Palmdale, Calif. Pentagon acquisition chief Frank Kendall sees it as a possible model to preserve cutting-edge talent and capabilities in lean times.

About 12 industrial sectors are on the endangered species list, Broitman said. They include “the missile sector, the space sector, ground vehicles, radios [and] ... rotary wing” design or component supply, among others she declined to name. For example, according to DOD’s 2012 mandatory report on the health of the industrial base, numerous military helicopters depend on bearings produced by just one company.

The 2012 “Annual Industrial Capabilities Report to Congress” cited fragility in other sectors, such as:

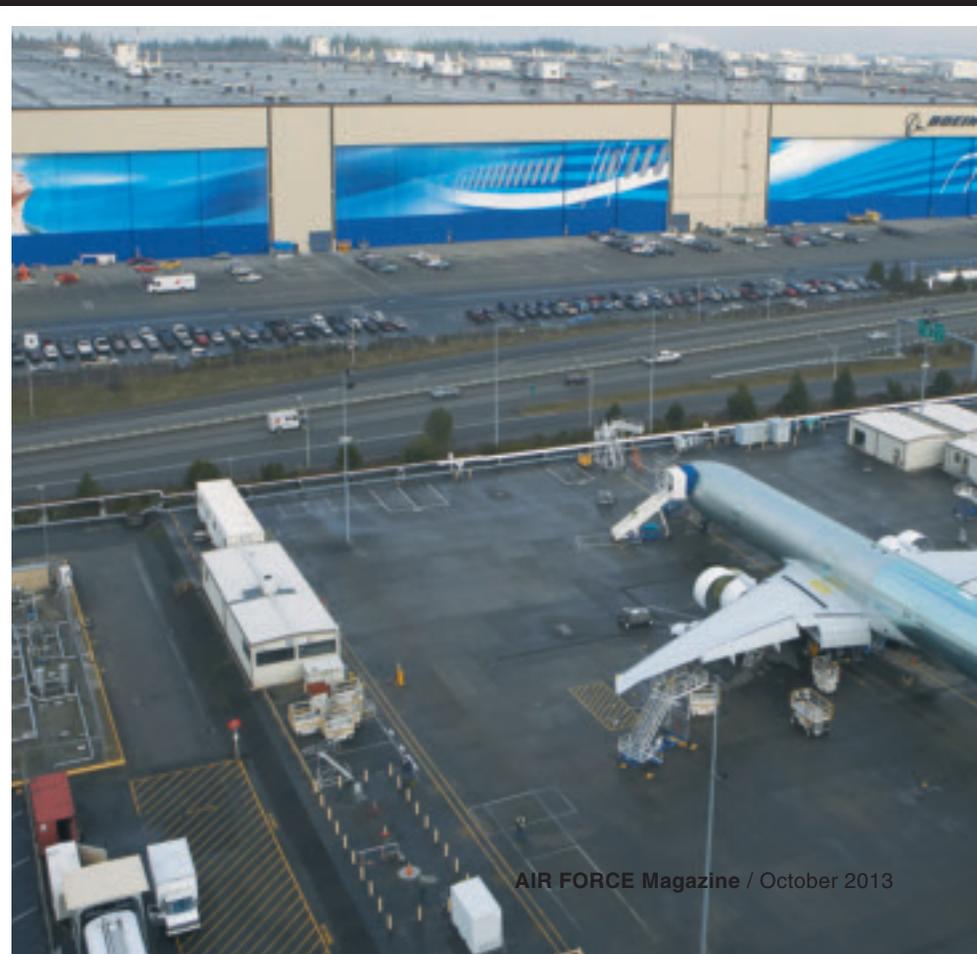
- small turbine engines that power cruise missiles
- solid rocket motors for weapons and launch vehicles
- heavy castings and forgings
- fuzes
- radar components and the ability to package them into advanced AESA (active electronically scanned array) radars.

The report also assessed potential restricted supply of certain strategic materials, such as titanium, beryllium, and rare earth elements.

Broitman said DOD won’t provide specifics on its most imperiled suppliers because the data are proprietary and were shared with the Pentagon in confidence.

There are some ways DOD can intervene to save an industrial capability if one is imperiled. Title III of the Defense Production Act allows DOD

to use a wide variety of techniques to help out a company that offers a unique and critical product. These can include spreading out a buy over a certain amount of time to loans to mandating a “buy American” clause in defense



been consolidated under her office, and the job has been elevated to the assistant secretary level.

The Defense Department “must increasingly tailor its relationships and policies to specific circumstances” in industry, according to Frank Kendall, the Pentagon’s acquisition, technology, and logistics chief. In 2011, he said “a long hiatus between new program starts in a given area can call into question the continued existence of experienced design teams and the body of knowledge they bring to development of certain types of products.”

Back to Skunk Works

One of these, for example, would be in the ability to design a new stealth fighter aircraft.

Blakey pointed out that right now there is no new US fighter even on the drawing board for the first time “since ... the Wright brothers.” Knowledge of stealth technology, critical to a new combat aircraft, is perishable.

“Once lost, rebuilding this type of capability can take a generation or more,” Kendall said, adding that DOD must be “vigilant” about situations where this could happen.

The 2012 industrial capabilities report urged the Pentagon to get new programs going in the areas where industry is

EADS photo



The Army's choice of the European UH-72 Lakota over American designs was a sign to some that the US helicopter industry had lost its competitive edge in some niches.

shaky, such as cruise and other kinds of missiles, small aircraft motors, certain kinds of seeker devices, and launch vehicles. While the companies making such products may not always be small and dependent on the one contract, they may, without something to work on, fold up their design shops in the starved areas, the report warned.

Kendall has in recent months urged companies not to give up their defense-oriented independent research and development efforts, asking for time to let government work out its disagreements and come up with an agreed upon spending plan.

“We’re very concerned,” Broitman said. “I’m worried” that among big companies the defense downturn “will mean less R&D into new technologies.”

She said what she hears most from companies is “as much as people are worried about the cuts, the hugely frustrating, immediate effect is they don’t know how to plan.” Executives “are incapacitated by the lack of clear data coming at them.”

Blakey agreed.

“We ... are urging, and I think to good effect at this point, that DOD have a good ongoing open dialogue with us about the decisions that they’re making, about the needs they’re going to have, about the capabilities that they anticipate maintaining,” Blakey said. Armed with the priorities list, companies can make informed decisions about what design teams and manufacturing capabilities

they may want to try to preserve if they know another project is coming along.

In the absence of clear guidance, she said, it’s tough to convince stockholders to spend the money to preserve a capability if there’s no guarantee it will be needed.

Kendall, in a May talk at the Center for Strategic and International Studies in Washington, D.C., suggested that DOD may want to go back to a “Skunk Works model” approach to developing new capabilities, in some cases.

Skunk Works was the moniker adopted by the small design and engineering shop formed by the late Clarence L. “Kelly” Johnson of Lockheed. He created it to tackle specific, high-challenge problems, and credited its successes—including the U-2, SR-71 reconnaissance aircraft, and the F-117 stealth attack fighter—to secrecy, minimal government oversight or interference, and a spirit of cooperation and trust between the government and the company.

This approach will only work, Kendall said, when both the contractor and government teams are small and “both sides know what has to be done.” In emulation of Johnson’s shop, Boeing created its own “Phantom Works,” but Kendall was not suggesting limiting the idea to one of those companies. He’s invited all the services to nominate a candidate program that might benefit from the approach, in order to help keep innovation, critical capabilities and know-how alive. If it works, com-



Boeing photo by Ed Turner

Big primes like Boeing (left, with a 777 airliner being readied for delivery) have some cushion from their commercial business. But lower-tier vendors with only a few crucial military contracts could be wiped out by defense cuts.



via chinemilitaryreview.blogspot.com

Stealth fighter prototypes—this is China's Shenyang J-31—are appearing in competitor air forces. Without a next generation jet to work on, industry leaders fear America will lose air superiority.

“I would certainly give great credit to the Administration for their work on export licensing and reforming the export control process,” Blakey said. “It’s never fast enough, but that is an area where they are making substantial progress.” Recent relaxation of satellite technology controls, for example, means the US “can really get back in the game there.”

It would be wrong, however, to assume that greater exports alone will keep the US military edge. Certain technologies such as stealth are “the crown jewels” that keep the US ahead of its competitors, Blakey observed.

“There are ... certain technologies and capabilities that we still hold very close which make an enormous difference in the United States’ ability to dominate when it comes to any theater of war,” she said. Air superiority, for example, “matters tremendously, and we still hold a number of key cards in that.”

However, China is developing a stealth capability, so this is “not an area that the United States’ role can be taken for granted or even will remain healthy if others are able to develop competitive technologies and ... control the marketplace.”

The 2012 industrial capabilities report noted that in most aerospace technology, competitors such as China are lagging the US by only five years.

Broitman said the government wants to intervene in the industrial base as little as possible and, to the extent it can, allow the market to decide. Plus, “so much innovation comes from different tiers” of suppliers, she said. “We’re trying to get our analytical arms around ... that,” looking for ways DOD can actually help without interfering with natural market forces.

The sector-by-sector, tier-by-tier analysis, she said, will be constantly updated and is now a tool DOD can use to find critical companies and products without which the US would be in military trouble.

The US defense sector “is in for a tough ride, obviously, for a couple of years,” she said. “I think we are working on it” by doing everything possible to keep communications open with industry and listening to its concerns.

Blakey agreed that DOD is trying harder to be a partner and act on industry’s concerns, but the real solution is the one no one has in great supply.

“The most obvious and important thing is to not make such massive defense cuts that we can’t recover from them and we do lose vital capabilities,” she said. “There is no substitute in this for money.” ■

panies could get more such contracts, he said. “It could be a very efficient way to do work.”

The Skunk Works comment is the closest anyone from Kendall’s shop has come to explaining how the US will preserve its ability to design new fighter aircraft given the long hiatus expected between the F-35 and whatever comes next. Pentagon and Air Force officials have suggested that concept work on USAF’s Long-Range Strike Bomber will help keep stealth and other critical know-how alive, and then-Air Force Secretary Michael B. Donley suggested that a new fighter will get underway during the Pentagon’s five-year plan.

Design teams, however, are expensive to keep together, and in the absence of an opportunity to work on cutting-edge technology that actually gets built, “I am having a tough time asking my guys to wait,” said one major company’s technology chief. He noted that in Kelly Johnson’s day, new aircraft designs came along every year or two. An engineer could reasonably expect to work on a dozen or more combat aircraft over a career. Now, the cycle times are so long, “they may only work on one program if they stick with me for 20 years,” he said. “That is not a recruiting incentive.”

Brett B. Lambert, who in August left the job as assistant secretary of defense for manufacturing and industrial base, told the Association of Defense Communities in June that one could argue “there’s not a single defense industrial base” anymore, given the fact that the Pentagon’s vendors get their products from “around the globe.”

“The demand for exclusively defense products has never been less,” he said, and DOD no longer gets to “dictate” what will be produced.

Broitman noted that, back in the 1980s, “75 percent of what we bought was produced [just] for us,” meaning that defense drove the market. Today, however, “70 percent of what we buy ... is not produced strictly for us,” and defense is just one of many customers for a given product. That’s good, because broader supply and competition means, generally, lower prices. But it’s bad in that the US often becomes dependent on another country for supply of a critical material or device, and that country may not be an ally.

The Crown Jewels

The US government—in the combined efforts of DOD, Congress, and the Departments of Commerce and State—has been slow to reform its list of aerospace goods that can be sold abroad, a fact that gives the aerospace industry fits. What was a cutting-edge technology just five years ago may now be freely available on the open market as competitors have caught up to US technology. While those competitors can easily sell such equipment, laws are still on the books banning US companies from exporting it because government has not caught up to revising its export control regime.

An accelerated pace of allowing such sales would greatly help preserve US aerospace competitiveness, Blakey said.

“We need to step up our game” on foreign military sales and direct commercial sales, she said. Those sales help companies’ bottom lines and also preserve “some” design talent.