The Complexity Vortex

Unless it Changes Course, the Pentagon Will Spend Itself into Unilateral Disarmament

BY DAN GRAZIER

There's no doubt the Military-Industrial-Congressional Complex has an obsession with whiz-bang gadgetry. Hardly a day passes without someone from the defense “intelligentsia” braying about the need for increased taxpayer investments so the United States can maintain its technological overmatch or create stronger partnerships with Silicon Valley to achieve a third offset strategy. These often sound like weighty concepts, worthy of the taxpayers’ money. In the end, however, they are little more than slick sales pitches. The Pentagon’s predilection for choosing needlessly complex and expensive weapons not only threatens to bankrupt the nation’s treasury, it also imperils the national defense by producing a diminishing and far more fragile military force.

The Project On Government Oversight first delved into this problem by publishing a report by retired Air Force Colonel Everest Riccioni titled, Is the Air Force Spending Itself into Unilateral Disarmament? in August 2001. Colonel Riccioni noted that the F-22, billed as a supersonic fighter capable of flying undetected deep into Soviet airspace to intercept nuclear bombers, had even then already fallen short of the lavish promises used to sell the program. He also predicted the program’s complexity would continue to drive up the costs to a point where

the United States would never be able to afford the aircraft in the numbers originally envisioned. “The F-22 fleet initially was projected at 800 aircraft and a total cost of $40 billion. The idea of this fleet was that it would provide the air superiority previously guaranteed by 1600 fighters—400 F-15s and 1200 F-16s, all of which were acknowledged to be wearing out,” he wrote. The lessons and recommendations detailed in the report were soon eclipsed by the September 11 attacks and the subsequent War on Terror. While Colonel Riccioni’s work focused on the Air Force, his basic thesis can be applied across all the services. The character of American military spending comport quite well with the law of diminishing returns. We keep spending more and more on the military and getting less and less in return. Nearly two decades of constant war have served only to exacerbate many of these problems, and the United States is, if anything, in an even worse position today.

In 2001, Congress set the Pentagon’s budget at $312 billion. The 2018 omnibus spending agreement provided $700 billion for the military, more than double the 2001 figure. Had defense spending merely kept pace with inflation, the Pentagon budget in 2018 should be approximately $445 billion. While defense budgets keep growing, the forces they produce have not. Simply comparing the basic combat force structure, the available military strength has stagnated and in some cases actually decreased since 2001. The active Army in 2001 consisted of 10 divisions and 3 armored cavalry regiments. The Army National Guard had 8 divisions of 3 brigades each, 15 enhanced separate brigades for rapid deployments, and 2 strategic infantry brigades, for a total of 42. The Army now uses brigade combat teams as the standard formation. Today there are 31 active brigade combat teams, which roughly equals the 10 active divisions at the turn of the century. The separate armored cavalry regiments of 2001 have become brigade combat teams and are counted with the 31 BCTs, resulting in a smaller overall force. The Army National Guard now consists of just 26 brigades. Naval strength can be counted in either the total number of ships or the number of aircraft carriers. The Navy had a fleet of 258 ships in 2001 and has 292 today. The number of aircraft carriers has gone from 12 in 2001 to 11 today. Air Force combat strength is measured in the number of fighter squadrons and bombers. The Air Force had 78 active fighter and attack squadrons and 112 combat-coded bombers in 2001. The Air Force Reserve and Air National Guard had 45 fighter and attack

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2 Statista, “U.S. Military Spending From 2000 to 2017.”
3 Senate Armed Services Committee, “Department of Defense Appropriations, 2018: Omnibus Agreement Summary.”
squadrons plus another 4 air defense interceptor squadrons. Today there are only 41 active fighter squadrons and 23 in the reserve and guard with 112 bombers.\(^8\)

Colonel Riccioni’s predictions turned out to be prophetic, especially in the case of the F-22. Designed to be a replacement for the F-15 air superiority fighter, the Air Force had first contracted to purchase 648 F-22s at a program acquisition unit cost of $133.6 million each.\(^9\) The F-15 program had ultimately delivered more than 1,100 aircraft of all variants to the Air Force. Even from the initial planning stages of the F-22 program, the fleet of fighters began to shrink.\(^10\) Development costs quickly began their inevitable climb because Air Force leaders and contractors sold the program to Congress by overstating the ease of the development process and underestimating the expected costs. This prompted officials to slash the planned production figures in an attempt to offset the rising costs. First came the Bottom-Up Review in 1993, when the planned fleet shrank to 442. Next came the 1997 Quadrennial Defense Review, when officials slashed planned production to 339.\(^11\) In the end, F-22 production totaled just 187 aircraft at an average cost of $350 million each.\(^12\) When the costs for the 10 separate F-22 upgrade programs (read: programs to complete the development that should have been completed in the original design effort) are divided across the fleet, the cost of each rises to over $377 million.\(^13\)

It is easy to see why government officials became so nervous about the costs. In 2001, the Congressional Budget Office anticipated the Air Force would only be able to afford 100 to 175 F-22s and predicted the cost of each would balloon to $350 million a full 10 years before that nearly exact estimate became manifest. Using that information, Colonel Riccioni created a chart showing the cost history of the F-22. He labeled the $200 million-per-aircraft cost threshold that the program was, at the time, about to breach as “OBSCENE,” and $300 million as “INSANE.”

Only time will tell what will take place with the F-35 program, but there are gathering storm clouds that suggest it could suffer a similar fate. The spiraling costs to maintain the F-35 have already prompted Air Force leaders to consider cutting the planned production run by a third.\(^14\) The service currently expects to buy 1,763 F-35s but may end up cutting 590 because leaders are unsure of their ability to operate and maintain the originally planned fleet.

The architects of the F-35 program did learn some lessons from their F-22 experience, even if they were the wrong lessons from an effectiveness and affordability standpoint. Program leaders are working to buy as many F-35s as possible before anyone has an opportunity to cut short production as then-Defense Secretary Robert Gates did with the F-22 pro-

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\(^9\) “F-22 Raptor History,” GlobalSecurity.org. (Hereinafter “F-22 Raptor History”)


\(^11\) “F-22 Raptor History”


gram. At the current rate, the taxpayers will be on the hook for upwards of 600 F-35s before the design can be proven effective through realistic combat testing.\(^{15}\)

**Techno-Centric Warfare Increases Costs but Not Effectiveness**

At the very root of this problem is the U.S. military’s techno-centric approach to warfare. This is based on the assumption that victory in warfare can be achieved only when one side in a conflict possesses more technologically advanced weapons than the other side. This is an incorrect assumption. The ideas a force wields in battle matter far more than any other factor. Weapons are simply tools used to implement tactics, which ultimately achieve the operational and strategic goals. Our military needs quality tools to be successful, but it is important to understand what actually constitutes quality in a weapon system. Conventional wisdom holds that the more complex a weapon is, the higher its quality is. This is the view the Military-Industrial-Congressional Complex (MICC) continually pushes, when in reality, simpler systems are almost always more effective.

Complex weapons serve the MICC’s interests well. They require numerous subcontracts, which satisfy Congressional interests, as they can be spread into districts all across the country. The representatives of these districts can then campaign on the number of jobs they “created.”

Complex weapons also require a great deal of time to develop. The defense contractors like this because it allows them to milk the development process for profits as long as possible, particularly in a cost-plus contract. They can confidently run up expenses knowing the government will eventually reimburse them. For example, costs for the USS Gerald R. Ford aircraft carrier have increased by at least 22 percent, from $10.5 billion to $12.9 billion.\(^ {16}\) The program just recently breached this $12.9 billion figure by $120 million to repair the ship’s propulsion system and correct

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design deficiencies on its weapons elevators.  

The Services, or rather, the Services’ senior leaders, like complex weapons because they help justify larger budgets. And by convincing Congress to authorize the purchase of these systems, military officials help funnel taxpayer money into the coffers of their future employers in the defense industry.

The losers in this arrangement are obviously the taxpayers, who continually pay more and more while receiving a smaller and less capable military force for their money, and the people who have to take these systems into battle. The impact on the men and women actually doing the fighting is of great importance.  

Many dismiss the diminishing number of weapons as not mattering since technology supposedly makes up the difference. The character of warfare has certainly changed in the years since World War II. Then, massive military forces were needed to confront other state-controlled military forces. With the advent of nuclear weapons, conflicts of a similar scale are unlikely to occur again. But this does not mean that numbers no longer matter in warfare. The United States needs to have a force large enough to meet its national security priorities and commitments. Having a smaller force puts a greater strain on the people and machines that remain. The Navy inadvertently and tragically staged a demonstration of this phenomenon in 2017 with a series of deadly incidents in the Pacific.  

Seven sailors died when the destroyer USS Fitzgerald collided with a container ship off the coast of Japan in June. Ten sailors died two months later when the USS John S. McCain collided with an oil tanker in the Straits of Malacca. These incidents occurred in part because the 7th Fleet, with its current complement of personnel and ships, had difficulty meeting all of its assigned missions, according to a Navy review.  

The authors of the Air Force’s Air Superiority 2030 report also acknowledged this problem and at least verbalized the need to pursue low-cost systems in order to be able to field larger forces. Only time will tell if any defense officials, civilian or military, actually act on this.

The Simplicity Virtue Versus the Complexity Vortex  

As a general rule, weapons should be the simplest possible design that meets the needs of their intended use. This serves several functions. It has a quantitative effect: it keeps the costs under control, which means the weapons can be purchased in numbers large enough to be useful on the battlefield. The more complex a weapon system is, the longer it takes to educate and train troops to operate the weapon. Unit training also becomes more difficult because the force spends an inordinate amount of time on basic maintenance rather than going out and training to use the weapon in the field. And the effects of complexity are cumulative: every extra component added to a weapon system is one more potential failure point. This increases the maintenance burden and increases the chances that the weapon will not be available when it is needed most.

Murphy’s Law looms large in all military operations. The author experienced this numerous times while serving in the Marine Corps. As fearsome as main battle tanks are, they are notorious for breaking down. Every extra component added to a weapon system is one more potential failure point. This increases the maintenance burden and increases the chances that the weapon will not be available when it is needed most.

Every time a tank breaks down in the field, operations are disrupted. Depending on the circumstances and the logistics plan, the effects of these breakdowns can be overcome, but the tempo of the mission will be disrupted and battlefield opportunities, which are always fleeting, can be missed. With this elemental knowledge in place, Service leaders signing off on a new weapon system should opt for the simplest possible designs to minimize potential maintenance problems to the greatest extent possible. Doing so will provide Murphy with far fewer opportunities to wreak havoc.

The F-35 provides another excellent example of excess complexity creating debilitating maintenance burdens. Due in large part to the overall complexity of the system,

the F-35 had an abysmal 26 percent average fully mission-capable rate in 2017. That means that at any given time, only a quarter of the fleet could be expected to perform all the tasks the F-35 has been designed to perform. There haven’t been many signs of improvement. The availability rates of the F-35 have remained relatively unchanged for the past four years. This complexity vortex actually magnifies the effects of unilateral disarmament. As the complexity of weapon systems increases, costs skyrocket and we can afford to buy fewer and fewer of them. At the same time, the increased complexity makes them more difficult to maintain, so the available fleet shrinks even more. The MICC has trapped itself in a vicious circle of the highest order.

**Complexity Vortex Case Studies**

Colonel Riccioni’s work in 2001 focused exclusively on aircraft and aerial weapons. But the problem of spiraling costs causing a shrinking force is not confined to military aviation. This is a systemic problem across the elements and Services.

**THE USS GERALD R. FORD AIRCRAFT CARRIER**

The USS *Ford* is the first of the Navy’s newest class of super carriers to replace the older *Nimitz*-class ships. Its function remains exactly the same as the current ships, but Navy and Pentagon leaders decided to add more than a dozen new technologies, including an Electromagnetic Aircraft Launch System and Advanced Arresting Gear to perform the basic function of an aircraft carrier: launch and recover aircraft. Navy leaders promised the new design would reduce acquisition and life-cycle costs. So far, the Ford has cost at least $12.9 billion, $2.4 billion over the originally estimate price-tag. The last of the *Nimitz*-class ships, the USS *George H. W. Bush*, would cost $7.33 billion today. That is a 76 percent increase for the exactly sized fleet that does exactly the same thing.

**CH-53 HEAVY-LIFT HELICOPTERS**

The Marine Corps is currently upgrading its fleet of CH-53 heavy-lift helicopters. The CH-53 has gone through several versions since it first entered service in the 1960s. The Marine Corps currently operates the CH-53E “Super Stallion.” These helicopters would each cost approximately $1 million today. The Marine Corps plans to replace CH-53Es, of which 172 were originally purchased, with 200 CH-53K “King Stallions” according to the latest plans. This new version is capable of lifting nearly three times the weight its predecessor is capable of carrying. But as should be expected, this comes at a cost. Each CH-53K costs $131 million. If the Marine Corps actually purchases all 200 CH-53Ks, they will increase the fleet by 16 percent, but spend 219 percent more to do so.

**ZUMWALT-CLASS DESTROYERS**

The Navy’s *Zumwalt*-class guided-missile destroyer program suffered massive cost overruns, which resulted in its curtailment. The original plans called for the construction of 32 ships, but only 3 will actually be produced in another example of the shrinking force. The *Zumwalt* were meant to replace the *Arleigh Burke*-class ships, of which 65 are still active with another 9 yet to be added to the fleet for a total of 77. An *Arleigh Burke*-class ship costs approximately $1.76 billion. Each *Zumwalt*-class ship costs approximately $7.5 billion. That is a 326 percent increase in cost per ship, for 96 percent fewer destroyers.

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23 DOT&E FY 2017 Annual Report, p. 47.  
The New American Way of War

The President Attacks Syria Without Congress’s Approval

BY MARK THOMPSON

Historically, war has made orphans. Increasingly for the United States, war-making is becoming an orphan, too.

On behalf of the nation, President Trump unilaterally declared war on Syria on April 13. He pledged to “sustain this response” with additional attacks on the government of dictator Bashar Assad if he uses chemical weapons again. President Trump went out of his way to praise Britain and France for joining in the strike, which only served to highlight who was missing from the decision to go to war: the American people, and their elected representatives in Congress.

An apathetic American public and a spineless Congress have joined in a de facto alliance that increasingly allows U.S. presidents to go to war whenever and wherever they want.

Americans as part of this permanent background noise of conflict, says retired Army Lieutenant General David Barno, who commanded all U.S. forces in Afghanistan from 2003 to 2005. “These signals of greater action have provoked almost no interest from the citizenry, and frankly not much more from Congress.”

President Trump attacked Syria because of its alleged use of chemical weapons, not for its links to terrorists that might strike Americans at home. But it is part of the same package: the United States is now a nation waging war on auto-pilot, which—given the tenor of the times—means the United States will be engaged in conflict indefinitely, putting troops’ lives at risk and spending hundreds of billions of dollars it doesn’t have, without reflection or deliberation.

“If there is the potential for the attacks to be repeated or sustained, then the president should go to Congress for approval,” former chief of

2 Interview of Lt. Gen. David W. Barno, (USA Ret.), Visiting Professor of Strategic Studies and Senior Fellow at the Merrill Center in the Johns Hopkins School of Advanced International Studies (SAIS) by Mark Thompson, Project On Government Oversight, April 18, 2018.
U.S. Central Command Anthony Zinni says.

Let’s acknowledge up front that Syria is a mess, made more so by the shadows of Assad’s allies Iran and Russia, whose influence in the region is growing. A horrible civil war has raged across the country for seven years, with hundreds of rebel groups fighting Assad’s grip on power and among themselves. The world has sat on its hands as at least 400,000 civilians have died. Several chemical-weapons attacks, allegedly launched by Assad’s forces, have killed about 1,000, or 0.25 percent of the total. The latest such incident, just outside the capital of Damascus on April 7, killed at least 42 and triggered President Trump’s attack.

But the strike was launched without a U.S. strategy to guide it to its target. That, too, is what happens when a president is free to fire without having to convince the rest of us that he’s acting in our national security interests.

There were markedly different U.S. reactions to the strike, which only highlights the need for debate here at home. Many of President Trump’s supporters view it as a betrayal, following in the sad footsteps of George Bush and Barack Obama. "Congratulations to the Trump administration for adopting the same failed foreign policy and ignoring of the constitution as the last two administrations,” Doug Stafford, a strategist for Senator Rand Paul’s political action committee, tweeted.

Some experts who weighed in on the strikes ignored the elephant in the room. National-security heavyweights then-President Obama’s national-security adviser Susan Rice, retired Navy admiral and NATO commander Jim Stavridis, and former U.S. ambassador to Iraq Jim Jeffrey assessed the strike’s impact without mentioning the fact that the President is going it alone, without Congressional approval.

To highlight their preferred hands-off approach, senators proposed a retooled perpetual authorization for the use of military force their first day back at work following the Syrian attack. “A bipartisan bill introduced in the Senate [on April 16] would give the president sweeping authority to wage endless war anywhere in the world with limited congressional intervention,” The American Conservative reported. “In short, it’s a rubber stamp for the global war on terror.”

“Terror,” of course, has become the cudgel to beat the U.S. public into a cowering pile of protoplasm. Americans seem unable to put the terror threat in perspective, and then act accordingly. “If the past 17 years have taught us anything, it’s that far from being an existential menace, in most cases terrorism is a manageable threat,” argue Gene Healy and John Glaser of the Cato Institute in The New York Times. “Since Sept. 11, an American’s chance of being killed in the United States by a terrorist is about one in 40 million.”

Back at the Pentagon, Secretary of Defense James Mattis stressed the importance of Britain and France joining the attack. “Wherever we operate, we do so with complete trust in each other, the professionalism, but more than that, the belief that one another will be there when the chips are down,” he said.

But it’s Congress, not France and England, that represents the American public. And unfortunately Congress is leaving the decision to one man. “By anyone’s definition, a nation that launches war on the word of one man is not, in any real sense, a republic any more,” Garrett Epps, a constitutional legal scholar at the University of Baltimore, wrote for The Atlantic. “In the long run, allowing the president to become an autocrat with sole control of war and peace is likely to prove fatal to the republic.”

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4 Mike DeBonis and Karoun Demirjian, “Lawmakers agree there should be a ‘strategy’ on Syria — but what that should be is an open question,” The Washington Post, April 14, 2018.
5 Zeeshan Aleem, “Trump’s America First media allies think he has betrayed them with the Syria strike,” Vox, April 15, 2018.
Nuke Agency Needs Accountability Before More Money

LYDIA DENNETT


Included in the omnibus spending bill passed by Congress this year is a significant funding increase for the agency in charge of building and maintaining our country’s nuclear weapons.¹ The National Nuclear Security Administration (NNSA), a semi-autonomous agency within the Department of Energy, has a $1.2 trillion plan to build new nuclear warheads and facilities over the next 30 years.²

But we’re concerned about how that money will be spent. With a problematic history of massive cost overruns and a full schedule of projects on deck, there’s no room for mistakes. Overspending at the Department of Defense prompted Congress to institute cost reporting measures, but NNSA’s even more significant

overruns haven't met with the same response: Congress has failed to use or create the kinds of tools necessary to review and oversee the agency's multi-billion dollar programs.

**A History of Critical Cost Breaches**

The NNSA is in charge of eight facilities across the country that build, maintain, and study the U.S. nuclear weapons arsenal. It's the largest civilian contracting agency in the federal government, but a hands-off approach to contractor management has led to countless problems and wasted tax dollars.

NNSA contract management has been on the Government Accountability Office’s (GAO) list of high-risk program areas for issues stemming from mismanagement since the list was created in 1990. Today the agency continues to struggle to stay within cost and schedule estimates for its biggest projects.3

NNSA's project management problems will only be compounded by an aggressive plan to upgrade existing nuclear warheads and infrastructure and to develop new nuclear weapons. In fact, two of the agency's biggest projects show that costs are already significantly increasing.

Documents recently obtained by the Project On Government Oversight undermine some of the justification for such an expansive—and expensive—nuclear plan.

**Uranium Processing Facility—355% Over Baseline Budget**

The Uranium Processing Facility (UPF) at the Y-12 National Security Complex is a textbook example of NNSA's history of underestimating and overspending. Y-12 houses the U.S. stockpile of highly enriched uranium and was supposedly the “Fort Knox of Uranium”—a myth that was shattered when an 83-year-old nun and her compatriots broke into the facility in 2012.

The new UPF was meant to replace several of the buildings that house operations to build and maintain the uranium portions of nuclear warheads known as secondaries. The facility was originally expected to cost $1 billion when it was sold to Congress in 2004, an estimate that almost immediately jumped to $6.5 billion.4

Initially, the NNSA had claimed publicly that it needed a “big box” design—one large facility that would replace several different buildings in the complex—that had the capacity to remanufacture 160-200 secondaries per year. But just a few years later the Department’s own Stockpile Stewardship and Management Plan stated they really only needed to remanufacture 80 per year.5

Given this shift within the Department, as well as a litany of design missteps, cost overruns, and poor project oversight, POGO recommended a lifetime study for uranium secondaries and a scaled-down design for the facility combined with utilizing existing facilities.

POGO recently obtained a 2010 peer review analysis conducted by the Los Alamos National Laboratory of the life expectancy study for the uranium secondaries of one nuclear warhead class in particular: the W78.6

"Actual life expectancy for the W78 would be longer than that predicted...

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6 Los Alamos National Laboratory, “Peer Review of W78 CSA Life Expectancy,” June 24, 2010. (Hereinafter “Peer Review of W78 CSA Life Expectancy”)
by the results shown in figure 1. The peer review committee says this, understanding the W78 team’s wish to ensure they have a conservative estimate of the life expectancy,” the report states.7

The review committee acknowledged the importance of erring on the side of caution when estimating how aging will affect the power, or yield, of nuclear weapons, but warned that being too cautious would not provide useful or accurate information.

“The peer review committee is concerned that a ‘too-conservative’ determination of degraded yield will lead to a life expectancy that is unrealistic (too short).”8

In 2012, it was revealed to the public that poor contractor management of the UPF project led to a $540 million design flaw that burned through 45 percent of the contingency funds built into the budget. Furthermore, an “official use only” report found that early reviews of the project showed the need for a higher cost range, and that they were disregarded in order to gain approval to proceed.9

After the design mistake became public, Congress took a more active oversight role. Significant bipartisan Congressional oversight led by the Senate Energy and Water Appropriations Subcommittee Chairman Lamar Alexander (R-TN) and Ranking Member Dianne Feinstein (D-CA) and a legislative mandate for regular reviews by the GAO have contributed to ensuring the project does not go over budget again.10

The NNSA now maintains they can complete a significantly scaled down version of the project that will still meet mission needs within the $6.5 billion budget.11 Still unfinished, UPF will now be much smaller, do less, and cost over three times as much as originally expected.

Chemistry and Metallurgy Research Replacement Facility—492% Over Baseline Budget

In addition to overhauling uranium processing capabilities, NNSA determined that it also needed to replace several of the facilities that manage the highly radioactive plutonium used in nuclear warheads. The agency initially planned to build the Chemistry and Metallurgy Research Replacement – Nuclear Facility to address plutonium production capacity issues but the project faced such significant cost increases that it was scrapped before construction began.

Originally expected to cost just under $1 billion, the estimate to finish design and construction of CMRR-NF soon ballooned to $7 billion.12 Ultimately, the NNSA spent $450 million on designing the project before Congress canceled it in 2014.13

The NNSA had claimed the proposed facility needed to be able to manufacture 450 plutonium cores per year. But after a lifetime study found that the cores can last for over 150 years without significantly degrading or affecting the warhead’s yield, the number plummeted to less than 80 per year, dramatically decreasing what would be required of the new building.14

The new UPF and plutonium production facilities are just the most recent examples where the NNSA claimed it needed “big box” buildings for maximum capacity. But poor management of contractors and a failure to adhere to best practices (like reaching 90 percent design completion before moving forward with the project) led to skyrocketing costs and unacceptable delays.

As costs began to rise for the design of CMRR-NF, the NNSA admitted that existing infrastructure could be modified to carry out some of the project’s planned missions at less cost.15

Although Congress canceled the project, the NNSA maintained they needed more capacity to support plutonium capabilities. So the agency pivoted and split the original program into two different parts. Instead of replacing all of the aging infrastructure with one building, the new plan will modify some existing facilities and create one new, smaller building.

But there’s no getting around the fact that twice now the NNSA has either obscured facts that would suggest a more limited capacity is all that’s required or has pursued an expensive plan without knowing all the facts beforehand. Either explanation is an unacceptable exploitation of taxpayer dollars. It’s long past time for Congress to step in and implement cost accounting standards to

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7 “Peer Review of W78 CSA Life Expectancy,” p. 7.
8 “Peer Review of W78 CSA Life Expectancy,” p. 5.
9 When You’re in a Hole, Just Stop Digging
14 Energy Department Plans to Waste Billions of Dollars
15 Department of Energy, FY 2013 Congressional Budget Request, February 2012, p. 41.
help keep these budget-busting boondoggles in line.

**Reporting Requirements Could Improve Accountability**

Despite its long and well-documented record of billions in cost overruns, the NNSA is not subject to the same kind of cost-reporting laws as the Department of Defense.

One such law, known as Nunn-McCurdy after the Members of Congress who created it, was passed in 1982 and requires the Defense Depart-

**There’s no getting around the fact that twice now the NNSA has either obscured facts that would suggest a more limited capacity is all that’s required or has pursued an expensive plan without knowing all the facts beforehand.**

ment to notify Congress any time a major defense acquisition project significantly increases in cost.\(^{16}\) If the project’s cost goes over 30 percent above the original baseline price, the program manager must notify Congress with an official report including the cause of cost increase, names of the military and civilian personnel responsible for the program’s management, and proposed actions to control the cost growth. If a project goes over 50 percent above the original cost it’s considered a critical breach and the Director of the Pent-

agon’s Cost Assessment and Program Evaluation office works with the Secretary of Defense to assess the program. This assessment includes a cost analysis of alternatives and the extent to which other Defense pro-

able programs. The Congressional Research Service found there has been a decline in Defense Depart-

ment programs going astronomically over budget since the law was passed.

But Nunn-McCurdy is not intended to be a program management tool; rather, it’s a reporting mechanism.\(^ {17}\) The law’s strict requirements have meant that Congress and the Depart-

tment itself have a great deal of additional information when making decisions about what projects are worth millions—or even billions—of additional dollars in investments. And it requires the Department to justify that spending publicly.

“To the extent that Nunn-

McCurdy increases visibility into—and an understanding of what causes—cost growth, the act can help efforts to improve weapon system acquisitions,” the Congressional Research Service found in a 2016 report.\(^ {18}\)

The NNSA is not bound by the same requirements despite such a long history of cost overruns, poor project management, and difficulty implementing lessons learned. These problems may have been avoided, or at least mitigated, by a Nunn-

McCurdy type law.

While the contractors in charge of these projects, or even the agency itself, are not always inclined to provide the kind of oversight these big projects need, there are Members of Congress who will step up to fight against wasteful spending when they have been presented with all the facts. The transparency and accountability afforded by Nunn-

McCurdy’s reporting requirements can help Members of Congress get those facts, and to make better-informed funding decisions that may prevent future astronomical cost increases.

Nunn-McCurdy-type laws have been applied to agencies other than the Defense Department. In 2010, Congress passed a law requiring reporting on major technological acquisitions by the Intelligence Community, and in 2015 Nunn-McCurdy type standards were applied to Department of Homeland Security acquisitions.

It will take strong Congressio-

nal backbone to implement Nunn-

McCurdy-type standards for NNSA. But the agency has demonstrated time and time again that it cannot control these projects on its own. Congress must step up and perform their oversight role to ensure our tax dollars won’t be wasted on yet another entirely preventable mistake.

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17 *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress*, p. 17.

18 *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress*, p. 16.
REPORT SHOWS

No Protection for F-22 Pilot Who Raised Safety Concerns

BY MANDY SMITHBERGER

F-22 pilots raised concerns about hypoxia-like symptoms due to oxygen problems with the F-22. Their commanders told them to fly anyway. In one case, the pilot was so disoriented by the lack of oxygen that he couldn’t remember where the emergency ring to activate his onboard oxygen generator system was.

The following piece was first published in March 2018. It has been excerpted and updated. The original can be found at http://www.pogo.org/straus/issues/congress/2018/report-shows-no-protection-for-f-22-pilot-who-raised-safety-concerns.html

In late 2011, Captain Joshua Wilson and Major Jeremy Gordon, F-22 pilots in the Virginia Air National Guard, joined other pilots in their unit raising concerns about hypoxia-like systems due to oxygen problems with the F-22. When their commanders told them to fly anyway, they raised their concerns to Congress, eventually appearing on 60 Minutes. In Wilson’s case, he described being so disoriented by the lack of oxygen that he couldn’t remember where the emergency ring to activate his onboard oxygen generator system (OBOGS) was. A filter was added to try to address these problems, but, they said, it only made the problems worse.

Wilson was relatively lucky since he was able to fly safely home. An accident report for another pilot, Captain Jeff Haney, found he died trying to find the emergency oxygen ring.¹ The Air Force blamed his death on pilot error rather than admit to any design flaws, though the Air Force did later redesign the ring to make it larger and easier to find.² Gordon did not face any immediate for-

mal disciplinary action, but Wilson was removed from a promotion vacancy list, had his flight status put under review, and received a letter of reprimand. After those actions he asked the Defense Department Inspector General to investigate what he believed to be illegal retaliation.

This report sends a deafening and discouraging signal that commanders prioritize their reputation over pilot safety.

Perhaps unsurprisingly, the Inspector General report, which the Project On Government Oversight obtained through the Freedom of Information Act (FOIA), found there wasn’t any retaliation. According to the report, Wilson’s Air National Guard commander punished him not because Wilson made disclosures but because he refused to fly a plane he had reasonable belief was unsafe. Refusing to fly, his commander told the Inspector General, undermined good order and discipline and “had the potential to cast” their wing “in an unfavorable light” with the active duty unit with whom they would shortly be conducting a joint exercise. Wilson’s commander punished him “despite his own personal misgivings about the safety of the F-22” and the filter.

While good order and discipline are essential in the military, they must be balanced against significant safety concerns. The report acknowledges that Wilson had a reasonable belief of substantial and specific dangers to public safety since another crash “would likely result in the loss of both pilot and the aircraft,” and “could be over a densely populated area in a very short time.”

Ongoing Problems Exposed by F-22 Whistleblowers Continue to Undermine Mission Effectiveness

Pilots continue to report problems with hypoxia and other physiological issues on a number of platforms, and there are still concerns about whether military leaders are taking the problem seriously enough. For example, the F-35 program has reported 29 physiological episodes, and grounded its fleet at Luke Air Force base last June after pilots reported experiencing hypoxia-like symptoms.

In another example, the Navy reported increasing annual rates of physiological issues for FA-18s. And last spring and summer, the Navy grounded the T-45 training aircraft after pilots refused to fly due to hypoxia concerns. A comprehensive review of the problems with physiological episodes involving FA-18s and T-45s, mandated by the House Armed Services Tactical Air and Land Forces Subcommittee, found that for pilots, leadership’s lack of understanding of the risks posed to pilots “ultimately led to a breakdown of trust and confidence that effective protective measures were in place to address safety and hazard concerns.”

Failing to adequately address these problems “is having a direct effect on overall readiness and affecting the confidence of our pilots as well as their ability to perform their missions,” the Subcommittee Chairman Mike Turner (R-OH) said in a recent hearing. “Because it is not just these events occurring, it is also the anxiety of these events occurring in succession.”

The problems raised by Captain Wilson and Major Gordon were even more systemic than initially understood. Leaders must take these problems seriously and not retaliate against those who come forward with real concerns. If military leaders refuse to listen to the problems raised by whistleblowers, they will continue to unnecessarily put pilots’ lives at risk.

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3 Bill Bartel, “Pilot’s career stalls after criticizing oxygen system,” Virginian-Pilot, August 20, 2014.
4 Department of Defense Inspector General, Captain Joshua Wilson United States Air Force Whistleblower Reprisal Investigation, August 8, 2014, pp. 2, 15. (Hereinafter Captain Joshua Wilson)
5 Captain Joshua Wilson, p. 8.
Conclusion

Colonel Riccioni provided lists of the causes of—and solutions to—the unilateral disarmament problem. Most are just as valid today as they were 17 years ago. Chief among them are that Department of Defense leadership misrepresents facts to a credulous Congress, and that the contractors that are best able to overstate what they can deliver and understate the expected costs get rewarded when their bid wins. And this entire process is enabled by what Colonel Riccioni called the “Iron Triangle”—the Military-Industrial-Congressional Complex. These three actors are intended to be checks and balances on one another, but instead collude for their own benefit, with the American taxpayers and the troops suffering the consequences.

The problem is not rooted in a lack of understanding by those in power. At the 2010 Acquisition Community Symposium, Frank Kendall, then-Undersecretary of Defense for Acquisition, Technology, and Logistics, delivered a briefing in which he echoed many of the concerns Colonel Riccioni raised nine years earlier. Most telling, he included a list of behaviors that contribute to inefficiency in the acquisitions process. These include setting unrealistic goals for programs, creating “optimistic” delivery schedules, and “rewarding high risk bidding practices.” He told the gathering of officials that these behaviors could be changed.

The question remains whether anyone will actually take the necessary steps to correct any of these bad practices. If the current process remains unchanged, within a generation the United States military will consume $2 trillion a year but will not be able to do much because the few weapons that are purchased will be too precious to place in harm’s way. That last point will probably be academic because the one fighter plane we could afford will be down for maintenance anyway.

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