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STATE OF THE DEFENSE INDUSTRIAL BASE

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ONE HUNDRED EIGHTEENTH CONGRESS

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STATE OF THE DEFENSE INDUSTRIAL BASE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, February 8, 2023.

The committee met, pursuant to call, at 11:00 a.m., in room 2118, Rayburn House Office Building, Hon. Mike Rogers (chairman of the committee) presiding.

OPENING STATEMENT OF HON. MIKE ROGERS, A REPRESENTATIVE FROM ALABAMA, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. The committee will come to order.

Yesterday we held our first briefing on the threats posed by the Chinese Communist Party. We reviewed the threats and actions our military should take to ensure success in any future conflict.

Today we are examining the state of the defense industrial base and how we can best position it to fully support our military if, in fact, a conflict breaks out.

For over 200 years we have relied on the skills of the men and women working in shipyards and factories throughout America to build the tools our warfighters need to succeed in battle. We cannot prevail in any conflict without a ready, strong, and adaptable industrial base.

Yet, the industrial base is experiencing a multitude of challenges. Some of these include inflation, workforce shortages, bureaucratic hurdles, and supply chains that remain too dependent on foreign sources for materials.

Inflation continues to wreak havoc on the cost of materials, driving up the costs for suppliers and small manufacturers who are hemmed in by fixed price contracts.

Making matters worse, the administration refuses to use the authorities and resources Congress gave them last year to provide the necessary relief.

Recruiting and retaining a skilled workforce was a problem before COVID [coronavirus disease] and it's only gotten worse. Bureaucratic contracting hurdles continue to slow things down and compound our ability to scale when needed.

They also continue to present barriers for new entrants into the defense industrial base, which we need to advance innovation. We took steps to overcome some of these hurdles in last year's NDAA [National Defense Authorization Act] but I am confident that more must be done.

Exacerbating these challenges is our important and necessary work to resupply Ukraine. That effort has laid bare many of our

vulnerabilities, especially with respect to our ability to rapidly produce and field munitions.

But the greatest concern I have with the defense industrial base is our continued reliance on China as the source of raw materials. The Chinese Communist Party maintains a tight grip on many of our material supply chains, including critical minerals and semiconductors.

We will never prevail in a conflict with China if they're the source of our military supply. While we have made some progress in recent years, I won't stop until we've completely rid the defense supply chain of Chinese goods and materials.

I look forward to hearing from our witnesses about what resources and authorities are needed to help revitalize the defense industrial base and position it best to support our warfighters.

And with that, I yield to my friend, the ranking member, Mr. Smith.

STATEMENT OF HON. ADAM SMITH, A REPRESENTATIVE FROM WASHINGTON, RANKING MEMBER, COMMITTEE ON ARMED SERVICES

Mr. SMITH. Thank you, Mr. Chairman.

This is an incredibly important hearing. I want to thank our witnesses for being here. We have got an outstanding panel with considerable background on this issue.

The industrial base, you know, is a growing challenge, something that, as the chairman mentioned, we were certainly aware of before COVID and before the war in Ukraine. But those two issues have brought it into sharp focus.

In both instances we suddenly found ourselves in desperate need of a lot more of certain—you know, certain production items and we looked around for how to create them and discovered that we did not have the surge capacity that we wanted, and we don't have the sustainable industrial base that we want to meet our needs in a variety of areas.

But, obviously, in the Armed Services Committee what we're focused on is meeting our needs in national security. And, again, we have a huge challenge and we're seeing that now play out in our effort to make sure we have enough munitions, basic ammunition, artillery, to meet the fighting requirements that are going on in Ukraine.

And we have learned, again, that we don't quite have that surge capacity. I remember hearing a lot of people when we would talk about the need for this say, well, you know, when the problem comes, we'll have surge capacity. That sounds great, okay. But we have come to find out it's really difficult to just sort of snap your fingers and all of a sudden create surge capacity.

We have heard consistently from our industrial partners that they are not going to build a level of manufacturing capability necessary to produce stuff if they don't know that someone's going to buy it.

This is what is—you know, the cliche now has become we need a demand signal, which basically means we need the government to promise us that they will pay us one way or another before we

will make the investments to be able to make things quicker and faster.

So, we need to figure that out. What do we really need in the industrial base? We are not going to be able to prepare for every conceivable contingency. We just don't have the resources and the private sector will not make that investment on a wish and a promise as to whether or not they will ever recoup that investment.

So, we need to be really strategic about it. What do we need, what are the most important things that we need to produce more of, and how do we do it. And we could not have three better people to help explain to us what those things are.

And then the other issue is the one that the chairman mentioned directly and that is our reliance on China. Starting, roughly, in the late 1990s into the early 2000s, China became the global corporate easy button. You know, that's where you went to make stuff. Huge market. You know, no—not much in the way of labor costs, certainly no environmental regulations. It was cheap. It was easy. It was the place to go.

Now we are beginning to diversify and in a bipartisan way on this committee, in the Trump administration, in the Biden administration. A number of proposals have been made to stop our reliance on China and to begin to diversify that market.

One key aspect of that is, yes, a lot of it will be done in the U.S. There's no way that the United States of America can meet this challenge on its own, and I know people don't like hearing that. You know, we're America. We'll make everything here. We will be independent. That's not the way the global economy works.

We need to increase our capacity, absolutely. But we also need to work with trusted partners. That's why things like the AUKUS [Australia, United Kingdom, United States] agreement are so important. Who are those trusted partners.

Yes, we would rather make it all here. But the thing that we really need is to make sure that it's not all made in China so how do we find those partners in order to build up that capacity of them, going forward.

And the last point I will make is when we look at that industrial base the real problem is, as the chairman mentioned, on innovation and on some of these smaller companies.

I have nothing against large prime contractors. They perform an incredibly important task for us. They have flexibility in a variety of different ways. There are so many capabilities on the smaller end that we are dependent upon small companies all across this country that don't have that flexibility and when they disappear, we got nowhere to go.

So, I'm really curious to hear how we get those sort of smaller tier manufacturers, going forward, and I guess I will make one other comment on precious earth minerals—rare earth and precious minerals.

We really need to build the capacity to process those things. We can actually find them in a bunch of different places. It's the processing that is almost all done in China. What are we going to do to fix that?

So, I look forward to this hearing. I think it's an incredibly important topic. I thank the chairman for having it and with that, I yield back.

The CHAIRMAN. I thank the ranking member, and I do hope the witnesses will pick up especially on that last point and help us understand how we can scratch that itch.

I'd like to introduce our witnesses now. We have a very distinguished panel.

The Honorable Eric Fanning is the current president and CEO [chief executive officer] of Aerospace Industries Association. He served as the 22d Secretary of the Army and various other senior roles in his 25 years of government service.

The Honorable David Norquist is the president and CEO of the National Defense Industrial Association. Mr. Norquist previously served as the 34th Deputy Secretary of Defense from 2019 to 2021.

And Matt Paxton is the president of the Shipbuilders Council of America, a role which he assumed in 2007 after a very distinguished career as a senior advisor in the Senate.

There's not a lot of work to do over there as they don't ever do anything. So, what were you advising them on?

[Laughter.]

The CHAIRMAN. Just joking. I welcome our witnesses and we'll start with Mr. Fanning.

STATEMENT OF HON. ERIC FANNING, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AEROSPACE INDUSTRIES ASSOCIATION

Mr. FANNING. Good morning, Chairman Rogers, Ranking Member Smith, and members of the committee. Thank you for inviting me to discuss the state of the defense industrial base.

The defense industrial base—the DIB—is the Department of Defense's most important partner in equipping and protecting our warfighters and defending our country.

To fulfill this vital role the companies that make up the DIB rely on clear demand signals from Congress as well as sufficient Federal investment, a regulatory environment that allows us to innovate and to move at the speed of relevance, and a healthy and resilient supply chain.

Recently, a confluence of challenges including a global pandemic, through which we never stopped working, record inflation, workforce challenges, and supply chain disruptions, to name a few, has put significant pressure on our industry.

Simultaneously, demand is increasing due to a major ground war in Europe with Russia's invasion of Ukraine almost 1 year ago, and the looming threat from China.

All of this combined has many wondering about the health of the DIB. To best answer this question, it's crucial to understand our industry. The contours of the national security industrial base and its ability to respond to these challenges are shaped by a single customer, the Federal Government. That is an important distinction from the commercial marketplace and one that has an outsized impact on its products, people, and performance.

Federal investments help ensure the overall health of the industry. That means that the number of programs prescribed by the Pentagon has a direct correlation to the shape of the industry.

Competition within the industry ecosystem is driven by identifying something for which to compete. Companies react accordingly. A good example of programs with many competitors is UAVs [unmanned aerial vehicles]. There are hundreds of programs and, hence, a multitude of competitors.

And our industrial base is not monolithic. It is a diverse ecosystem with companies of all sizes, each with its own role to play. While small companies can be innovative incubators by virtue of their size and ability to speed decisions, prime contractors bring scalability, capability, and cash flow, as well as a large talent pool with extensive experience. Large primes can also afford to maintain a workforce in ready state to meet evolving needs.

The condition of the industry today is not the result of Russia's invasion of Ukraine but of successive decisions made over many years. Federal policy and investment in our national defense can be summed up in two words: unpredictable and inconsistent.

Over the last 25 years, Congress has passed more than 120 continuing resolutions instead of on-time appropriations bills. In addition, we are still digging out from the effects of sequestration a decade ago.

I saw some of these effects firsthand during my time at the Pentagon, but others have taken years to manifest and could take years to unwind without a sense of urgency.

One result of these many years of successive decisions is an industrial base maximized to meet peacetime needs. This means excess capacity for surging is not always built into the system. We are optimized for efficiency. With the potential of conflict on the horizon we must consider how we resource and support the capacity and resilience of the defense industrial base.

Both Congress and DOD [Department of Defense] have a role to play. Sufficient funding comes first. This committee's leadership is evident in recent NDAAs. The growing bipartisan, bicameral support for increased funding in recent years has been an important signal to industry.

But it's also critical that this funding is on time and predictable. Businesses need far more flexibility. The Department must empower its workforce to move beyond a compliance culture to one that exercises existing flexibility. For example, contract flexibility to address sky-high inflation was a welcome step but short term in scope. Other key tools like progress payments ensure businesses have stable cash flow.

And the cost of compliance for businesses has skyrocketed. How can we make it easier for businesses of all sizes to support national security? What existing regulations and policies are working as intended and which are causing more harm than good?

Taking additional steps to accelerate innovation and address harmful policies like R&D [research and development] tax amortization will help the U.S. military meet the threats posed by a modernizing Chinese military.

At the heart of everything is the workforce. We need policies and support to maintain this workforce, both skilled labor and degreed STEM [science, technology, engineering, and mathematics] workers. Every American should know they have a place in the aerospace and defense industry.

Several top Pentagon leaders acknowledge that the Department doesn't make it easy to do business with them. Even the Pentagon's reports on competition in small business largely highlight the barriers faced by companies wanting to be a part of our Nation's security.

Chairman Rogers, Ranking Member Smith, and members of the committee, we are grateful for the time you have taken to visit our members and hear from us firsthand. I extend an invitation to anyone here or at the Pentagon to do the same.

Industry is a partner, not an adversary. Let's work together to meet the moment. I've included a number of recommendations in my written testimony.

On behalf of the Aerospace Industries Association, I want to again thank the committee for prioritizing this critical issue, and I look forward to your questions.

[The prepared statement of Mr. Fanning can be found in the Appendix on page 59.]

The CHAIRMAN. Thank you, Mr. Fanning.

Mr. Norquist, you are recognized.

STATEMENT OF HON. DAVID L. NORQUIST, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Mr. NORQUIST. Thank you.

Chairman Rogers, Ranking Member Smith, and distinguished members of the committee, thank you for the opportunity to speak with you today on the state of the defense industrial base and its essential role in national security.

I will limit myself to brief opening remarks and with the Chair's permission submit for the record NDIA's "Vital Signs 2023" report.

[The information referred to can be found in the Appendix on page 101.]

Mr. NORQUIST. For over 100 years, the National Defense Industrial Association has worked to improve collaboration between industry and government so our Nation's security can fully harness the benefits of our innovative industrial base.

As a trade association, NDIA represents over 1,800 defense companies of all sizes and all sectors, and the majority of our members are small businesses. The defense industrial base is critical to our national security. Its people develop, produce, maintain, and repair the platforms, equipment, supplies, and advanced technologies our warfighters need.

They're the welders, engineers, programmers, scientists, analysts, and technicians who respond to our Nation's call to maintain our military and to build the future force.

Today there is a mismatch between what our national strategies aim to achieve and how our defense industrial base is postured. Both the 2018 and the 2022 National Defense Strategies highlight the return of great power competition, and the 2022 National Security Strategy states, quote, "the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next."

However, key industrial readiness indicators for great power competition are going in the wrong direction. For example, we

should expect the number of workers in the defense industrial base to be increasing. In 1985, the U.S. had 3 million workers in the defense industry. In 2021, there were 1.1 million workers in the sector and that number is remaining flat.

We should expect the number of companies in the defense industrial base to be increasing but analysis shows that over the last 5 years a net 17,000 companies have left the defense industrial base.

In particular, the Department of Defense recently estimated the number of small businesses participating in the defense industrial base has declined over 40 percent in the last decade.

From 1985 to 2021, funding for national defense decreased from 5.8 to 3.2 percent of U.S. GDP [gross domestic product] and the Congressional Budget Office projects a further decline to 2.7 percent by 2032.

In addition, in 13 of the last 14 years we have had long continuing resolutions that specifically prevent new starts or increased production rates. These trends are not consistent with creating the defense industrial base required for great power competition.

But the current state of the defense industrial base is not an accident. It developed in response to government policy and funding. To produce resilience in the defense industrial base the government must value it in budgeting and in its contracting processes.

This would be—include encouraging vendors to use multiple suppliers, having more parts in stock, and building surge capacity. This can be done through contracts as well as supported by Congress via multiyear authority and advanced procurement.

We should also make it easier for firms to do business with the government, particularly small businesses and those nontraditional industries who cannot afford the many regulatory barriers to entry, the long contracting timelines, and the disruptive uncertainty with annual appropriations.

The return of great power competition places greater demands on America's defense industrial base. A brittle industrial base is a strategic vulnerability. A resilient defense industrial base is a powerful deterrent.

I appreciate the committee's wisdom in prioritizing this critical issue. Thank you for the opportunity to testify today and happy to answer any questions you may have.

[The prepared statement of Mr. Norquist can be found in the Appendix on page 74.]

The CHAIRMAN. Thank you, Mr. Norquist.

Mr. Paxton.

STATEMENT OF MATTHEW PAXTON, PRESIDENT, SHIPBUILDERS COUNCIL OF AMERICA

Mr. PAXTON. Yes, thank you, and on behalf of the Shipbuilders Council of America I'd like to thank Chairman Rogers, Ranking Member Smith, and members of the House Armed Services Committee for the opportunity to provide the shipyard industrial perspective on the state of the industrial base.

The U.S. shipyard industry is a diverse and critical manufacturing sector of our Nation's economy. A recent study by the Maritime Administration found that the industry supports nearly

400,000 direct and indirect jobs touching all 50 States and contributes $42.2 billion annually to GDP.

Shipyards are engaged in building, maintaining, modernizing, and repairing vessels of all sizes for the U.S. Navy, Coast Guard, Army, NOAA [National Oceanic and Atmospheric Administration], the Maritime Administration, local and State governments, and the 40,000 commercial vessels that operate in domestic commerce.

Additionally, there's a vast supplier base that provides goods and services that support all facets of domestic shipbuilding and ship repair.

Our shipyard manufacturing sector is truly a national asset and one that is not immune to the many recent historic challenges that adversely impacted global supply chains, access to critical markets, materials, COVID impacts on the workforce, record inflation, and a fundamentally changing marketplace.

In spite of these challenges, the U.S. shipyard industry showed its capacity to implement rapid protocols to keep the workforce safe while navigating an ever-evolving global pandemic.

As a designated critical infrastructure industry, your American shipyards never shut down and shipyard employees cut steel to build, repair, maintain, and modernize our ships throughout the pandemic.

Indeed, in the height of the pandemic in 2020 the shipyard industry delivered 10 ships to the Navy and maintained and modernized many more. I believe this is a testament to the culture of safety found in our shipyards that predated the pandemic.

Unfortunately, over the last several years the industry has also experienced unpredictable budgets, a volatile acquisition environment with repeated shifts in fleet size and mix that made CAPEX [capital expenditure] and facility investment decisions more difficult.

Moreover, once the people are lost as production lines are stopped and started, they're more difficult to replace. The most effective mechanism to ensure the industrial base is stable and resilient is through a consistent upward and adequately funded demand signal.

Let me state up front: The shipyard industrial base has made and will continue to make considerable investments in its workforce to hire and train the next generation of skilled craftsmen and women.

In addition, the private shipyard industry has made substantial investments in new capital infrastructure, including dry docks, to meet the demands of the Navy's new construction and ship repair plans.

Private shipyards require a predictable workload and a volume of work to support recapitalization of equipment, to keep rates low, and to train and retain a sustainable workforce.

In addition to funding the construction of Navy vessels, there must be a similar commitment to fund the tail, the maintenance of the current ships entering the fleet to ensure they reach their expected service lives.

Much like shipbuilding, ship repair and modernization would benefit from the use of acquisition strategies that promote private sector investment in people and infrastructure, increases the vol-

ume of work at existing private shipyards, and promotes the speed of execution to meet the unique challenges of the maintenance and modernization environments.

It is not possible to get to the legally mandated 355 fleet size if the services do not adequately budget to maintain the ships that we do have and that are being commissioned over the next few years for the duration of their service lives.

SCA [Shipbuilders Council of America] applauds the work of this committee in the fiscal year 2023 NDAA to prevent the decommissioning of 24 additional ships and to restore some predictability to maintenance schedules.

Regardless of this assessment, the private shipyard industry and the associated critical supply chain remain committed partners in building, maintaining, and modernizing the most capable and advanced Navy for the Nation and our dedicated service men and women.

Thank you again for the opportunity to provide the shipyard industry perspectives on the state of the industrial base, and I look forward to your questions.

[The prepared statement of Mr. Paxton can be found in the Appendix on page 84.]

The CHAIRMAN. Thank you, Mr. Paxton, and thank all the witnesses, and I now recognize myself for questions.

Mr. Norquist, you mentioned in your statement the number of companies that have left the industrial base and I'm particularly concerned about those who focus on munitions and rocket motor providers.

How do we bring those people back in or get—make it inviting for these kind of companies, particularly small companies, to participate in the industrial base?

Mr. NORQUIST. So when you look at how particularly the smaller companies operate, they have a much lower ability to tolerate gaps between when they have—when there's a requirement and their ability to deliver so things that shorten those timelines so they can ramp up and have expectations.

One of the things the committee did recently that's very helpful is multiyear contracts, right. If you're a business and you're going to ramp up and increase the size of your facility and you're going to hire people, you want to be able to promise those people not you have a job until the next appropriation and authorization bill is enacted and then we'll see, but we have got it for 4 years and we can invest in the facility. So that level of predictability and when that can be provided is a huge help.

The other thing to look at is the number of times we introduce a rule or regulation on government contractors that are not common in the private sector. This is most disruptive to a firm that has one foot in each and starts getting frustrated with all the additional requirements.

Many of them well intentioned, many of them important. But when you look at the cumulative effect that firm decides it's easier to move out. The most, you know, recent example, and it's a side effect of our business, is inflation. When the inflation hit and small businesses in the private sector could change their prices tomorrow, a woman-owned small business I was talking to they're locked

into their salaries for 5 years with the government. So, she's going to watch her staff leave.

So those are a couple of examples, sir.

The CHAIRMAN. Great.

Mr. Fanning, you heard the ranking member mention this concern about China's control of minerals and many materials that we need in our supply chain. Do you—does that worry you and, if so, what do you recommend that we do about that concern?

Mr. FANNING. It does worry me, Mr. Chairman, and it worries the members as well.

I'd point out that it took us years to get to where we are built on different policies with China, and as we pivot and try and extricate ourselves, particularly on the national security side, it's going to take time, shared effort, and a sense of urgency.

We largely source from friends anyhow, as it is right now. Our largest exporters in the defense world are our largest importers as well—China, Canada—I'm sorry, Japan, Canada, the U.K. [United Kingdom], Germany, and France.

So, it's really just down to those minerals, but that's still a concern of ours, and as the ranking member pointed out a big part of that is processing. We know where to get the minerals, but the processing of it is a difficult, expensive process that has [inaudible] impacts.

The CHAIRMAN. Why? What could we do to make it easier? Less difficult?

Mr. FANNING. Well, I think this is—one of my suggestions would be that we change the name of the office in the Pentagon on defense industrial policy to something else because that has negative connotations, and I think when you look at it from the lens of national security, there is an important aspect for us to work together, government and industry, and figure out what each needs to do.

In this particular case, I think investment on the part of government to get that started, to get that market, that capability, started so that the industry side then has a source and can turn to it and support it would be critically important because we have lost that capability.

The CHAIRMAN. Mr. Paxton, why is it important to receive more consistent demand signal from the Navy regarding its shipbuilding and repair plans?

Mr. PAXTON. Yeah. Mr. Chairman, I think most people understand in this room that shipyards and ship repair facilities are highly intensive capital enterprises.

So, a lot of long-term investments are made in our shipyards and our facilities but also a lot of our shipyards employ thousands and thousands of employees. So, there's a dedicated aspect of investing in our workforce as well.

Look, if we get a new shipbuilding plan every year for 11 years it sends a confusing message to industry. So, to the extent that we can have stable budgets—we got through sequestration and the Budget Control Act—to the extent that we have stable budgets and a stable demand signal—I know this has come up a few times this morning—industry will respond accordingly. They have in the past.

So, I think industry makes those investments and they want that stable market in front of them.

Lastly, I'll say—this committee has done this—acquisition strategies like incremental funding, advanced procurement, block buy contracting, those are huge for shipyards because that gives it the long lead time materials that we need to sequence ships, to have that stuff come in. Whereas some of the materials we're buying it was only 18 months to get. Now it's 2 to 3 years to get. So, it's really critical, sir. Thank you.

The CHAIRMAN. Thank you.

The Chair now yields to Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman, for scheduling this important hearing right at the outset of this Congress, which I think sends a strong message that—as an article that I wrote for The Hill, the title was "It's the Defense Industrial Base, Stupid," and, again, I think it's really something we have to keep reminding ourselves. It's how we won World War II when you really drill down in terms of the overwhelming force that our industrial base was able to bring to the battle.

I come from a district which, going back to the Obama administration, has the number one priority of—acquisition priority in terms of recapitalizing our undersea nuclear deterrent, the *Columbia* program. It just laid the keel for the first of 12 ships that are going to be basically built through the late 2030s and it is an all-hands-on-deck situation right now in terms of both workforce, supply chain, and facility.

The omnibus that we just passed, and the President signed on December 29th, included $768 million for those three critical items that are necessary for this program to succeed.

In the FYDP [Future Years Defense Program], which came over with the 2023 budget, actually proposes another $1.6 billion of investment, again, in workforce, supply chain, and facility.

So, Matt, you've been around this business a long time. I mean, what—in terms of the demand signal and the investment signal that the Navy has put into that program, how—what's your take on it and should—is that the approach that really we need to sort of size up for other parts? Not just of the Navy's budget but, frankly, other service branches?

Mr. PAXTON. Other programs? The answer is yes, sir. You know, your work on the House, Education, and Labor and this committee, I think, led to a lot of those type of thoughtful, you know, considerations on investment.

I will say this, sir. The private shipyard industry every day of the week is investing in their workforce. So, they have, you know, training facilities, apprenticeship programs. They team with local, you know, community colleges.

So, investments like this from the Federal level kind of, you know, get bang for the buck for what the private industry is doing as well. So, I really do believe—while we care deeply about the submarine industrial base, the fact that some of these monies are going to go across other shipbuilding programs is absolutely critical and it's also critical for our supply chain, trying to build that out as well. So, these investments are right on spot.

Mr. COURTNEY. Great. Thank you.

And, again, I would emphasize, this funding is not just going to southeastern Connecticut. This is going all across the country because the supply chain necessary for *Columbia* is critical.

We just had a new contract signing in Alabama with Austal that will become a major supplier into that program. And, again, just to follow up your point, you know, this—we have been working on this for a number of years and, in fact, the Department of Education career and technical education funding which funds the tech schools, the Department of Labor's funding for pre-apprenticeship training through the Workforce Investment and Opportunity Act and the National Apprenticeship Act, you know, that has really been the pathway that we have gone from 7,000 workers to 19,500.

And so, again, it really—if we're going to get serious about really expanding the workforce of the industrial base it has to be an all-of-government endeavor that includes the departments that have really been in this space for a long time. And, again, I would appreciate your thoughts on that.

Mr. PAXTON. And, Congressman Courtney, as you know, in the shipbuilding and ship repair industry we're heavily regionalized so we don't have necessarily best practices throughout. We don't have an accreditation necessarily in—across the Nation.

So when you have that regionalization in workforce development and those processes to have a Federal agency kind of bringing in best practices, I think, is a smart move and I think the industry—single biggest issue facing the industry is people and that's going to be the case, going forward, and we got to be more creative in our workforce development. So, I think initiatives like this are hitting the spot.

Mr. COURTNEY. Thank you. Again, if you go back to the World War II example, in 1937 Congress passed the Fitzgerald Act, which created the National Apprenticeship Program which set a national standard for the trades, whether it's welding, electricians, sheet metal, shipwrights, you name it, and that created sort of a baseline of quality in terms of the workforce that, again, fast forward just even a few years after that law was signed it was critical in terms of making sure that the ability of our industrial base to meet the moment and build the ships, planes, you know, ground vehicles, et cetera, was actually able to succeed.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The Chair now recognizes Mr. Wilson from South Carolina.

Mr. WILSON. Thank you very much, Mr. Chairman, and, again, congratulations on your chairmanship and we're really appreciative.

Secretary Fanning, supporting allies and partners through foreign military sales is a function only secured by the Department of Defense acquisition system, which standard contract takes an average of 18 months to award.

As tensions with China grow, the aggression by war criminal Putin into Ukraine, and the threats to Israel are ever made by Iran, what can the Department of Defense do to improve the overall foreign military sales process to deliver the best capability to partners in an accelerated time, especially for those in a current conflict, to try to achieve peace through strength?

Mr. FANNING. I think there are many things.

First of all, this—like, this will be a reoccurring theme today, I'm sure—we're poised for peace—our sense of urgency, our processes, how we invest—and we have got to move dramatically away from that to a sense of urgency and the FMS [foreign military sales] system is certainly a part of that.

And it's only going to get worse. The weapon sales we talked about to Poland, when we transition from giving things to Ukraine to selling things from Ukraine, it's going to grind down to a very slow process when it goes through the foreign military sales system.

So I think there are a number of things we have to do. We have to streamline the process. We have to change the presumption that's built into the process from the start to the finish, and it's really going to take dedicated senior leader attention to make sure this moves through the process.

Mr. WILSON. And we need your industries to really be prepared. An unintended positive is that our allies in NATO [North Atlantic Treaty Organization] who were formerly of the Warsaw Pact, it's a wonderful opportunity for them to divest themselves of Soviet-era equipment but immediately backfill for the defense of their countries with defensive capabilities. And so not only threats but we have opportunities and so I wish you well on that.

And, Secretary Norquist, the defense industrial base under current policies and financial investments are not currently oriented to support a defense ecosystem built for peer adversarial conflict.

There's a mismatch between what our national strategies are and our defense industrial base as postured, and with the return of the great power competition this gap is an unsustainable indictment.

With that, what can we do for the United States to lean forward on the critical issue? What can the U.S. defense industrial base do to increase outputs at a normal supply regularly scheduled demands while also rapidly fulfilling a surge and reconstituting military demands required for the potential of peer and near-peer conflict?

Mr. NORQUIST. So I think one of the first things, and I know this committee has mentioned this Department, is to look at the consumption rates and the expectations of the inventory we need in a high-end conflict.

The quantities you need if you're only expecting low-end conflicts or regional conflict are modest. You can replace them. But what we're seeing in the Ukraine is the volume of artillery, the volume of other munitions, being consumed and you need to start building stockpiles and quantities to meet that.

The second thing is when you look at contracts are you pricing it to get exactly a certain number and no more or are you building in resilience, additional capacity, additional throughput, spare parts in line so that there's not a disruption? Both of those could go a long way to making it much stronger.

Mr. WILSON. And in addition, we're all so pleased that we have had a significant prepositioning in Europe——

Mr. NORQUIST. Correct.

Mr. WILSON. [continuing]. With—and maintained it through the post-Cold War period, and a concern so many constituents have are we depleting too quickly. But we do have extraordinary capabilities that are already in place and particularly for delivery to the extraordinarily brave people of Ukraine.

Mr. Paxton, your written statement describes the Navy as having provided mixed messages over the last 5 years. What specificity and clarity does the Shipbuilders Council of America need for the United States Navy to ensure that the industry can accomplish the 355-ship objective?

Mr. PAXTON Well, I think it begins with stable budgets and I think the shipyard industry will tell you—the private industry will tell you that 10-year horizon—what is the plan over this 10-year period.

We know the 30-year shipbuilding plan is going to not be fully in line with what's going to happen. But that 10-year horizon allows shipyards, again, to make critical investments in its facilities and its workforce.

I think we have benefited from concepts where we split various ship sizes across shipyards. I think there's goodness in trying to get serious construction going, keep hot production lines going, and keep the workforce learning. I think those are things that will help, and we're also there to meet, you know, as partners with the Navy on, you know, new technologies and new ship classes. We're part of the team.

The CHAIRMAN. The gentleman's time is expired.

Mr. WILSON. Thank you.

The CHAIRMAN. The Chair now recognizes the gentleman from California, Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman, and for each of the witnesses, thank you.

I'm going to take this in a slightly different way probably because for the last 4 years I've been looking at readiness, otherwise known as are we ready.

The bottom line of it is that we spend an awful lot of time and energy in this committee to buy bright new shiny things, all of which are extraordinarily expensive, and we don't spend much time thinking about maintaining them.

So this is my own little particular area of concern is I would like us as a committee here, as the authorizers of the purchase of bright new shiny things, that we require that we always, together with the new, plan for the maintenance as they grow older.

F–35, a rather good example of, what is it, 15 years now we have been working on that and now we're finally thinking about a depot in—a repair depot in Florida. Gee.

Ships—Matt, we can talk about that. Yeah, we have a 20-year SIOP [Shipyard Infrastructure Optimization Program] program for the public yards, which is absolute baloney, not worth anything. You give me a 1-year and a 5-year plan and you have my attention. I think somebody mentioned 10 years. No. What are you going to do in the next 5 years and how are you going to get and then beyond that?

I suppose I'm just going to yield back. I'm just going to express my frustration at the defense industrial base but mostly at us for

not paying attention to the ongoing maintenance and requirements that have to be built into it.

And so, we find ourselves with ships. Maybe we can keep 50 percent of them at sea. Oh, we're going to have 350 ships. Really? And we can't even keep half of them at sea? F–35s—we go on and on and on here.

So I'm going to just give you a heads-up, folks. I would think the new chairman of the Readiness Committee will follow along with similar concerns that I have about being prepared, maintenance.

We can take a look at Ukraine and whatever we send there is going to have to be maintained. They're doing a pretty good job, actually.

I'm going to yield back and let somebody else go. I've been banging this drum and enough said here. But we have got to maintain. Oh, did I mention O&M [operations and maintenance] for us? For this committee and for the appropriators, heads up on O&M.

That's everything that needs to be done for readiness and we rip it off every year. If we're not ripping it off the appropriators are and if the appropriators aren't ripping it off the military Department of Defense is doing it. I'll let it go at that. I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from Colorado, Mr. Lamborn.

Mr. LAMBORN. Thank you, Mr. Chairman, for having this hearing and I want to thank all the witnesses for being here today.

Mr. Paxton, I'd like to discuss the Navy's submarine industrial base with you. As you know, the plan is to produce one *Columbia*-class and two *Virginia*-class submarines per year at Electric Boat in Newport News.

The *Columbia* program has very little, if any, margin for error as it needs to start coming online in October 2030 to replace the current *Ohio*-class submarines that will begin retiring in fiscal year 2027.

This is a massive task for our shipbuilders. A recent GAO [Government Accountability Office] report found that after more than a year of full-scale construction on the first *Columbia,* shipbuilders are facing delays because of challenges with design, materials, and quality.

The GAO report also questioned the plan to add staff to *Columbia* from *Virginia* since they assess there is not sufficient long-term planning for shared risks between the programs.

Can you share your views on this challenge with the committee, specifically the workforce and material availability issues that are already plaguing this no-fail program?

Mr. PAXTON. Yeah. Thank you, Congressman. Tough question.

I will say that——

Mr. LAMBORN. And could you put the microphone closer to you?

Mr. PAXTON. Yeah. Sorry, Congressman.

Yeah, I will say that, unfortunately, as a representative of the trade association I don't have a lot of visibility into the specific programs. That would probably be more of a question for the vendor to kind of dig into some of those really technical issues, probably some classified issues as well.

I will say that the industry is certainly up for the challenge. We are hiring rapidly. I know Electric Boat has been one of the top

hires in that area for that program. But as for the specifics as to what's going on there, sir, I apologize. I don't think I can really get into much granular, you know, detail.

Mr. LAMBORN. Okay. Well, we'll certainly be pursuing that with some of the other folks you mentioned in the near future.

And, Mr. Fanning, I have more of a general question for you. The last time we met we had a great discussion about the need to build and expand the defense industrial base workforce and talent pipeline.

It's always a challenge and there's a challenge sometimes because industry has different pay scales, maybe, than government service. How can the defense industry better recruit and retain workers and how do we deconflict these efforts between government and industry to ensure adequate staffing?

Mr. FANNING. Thank you for that question.

Workforce is the single most important issue for our industry and many other industries, I'm sure, and that was before COVID, before inflation, before the surge that we're going through right now.

I think there are a number of things that we could do in the near term. You know, it's harder for our industry in a number of ways. One, we can't work from home in most of the jobs. Two, a number of them are cleared—the security clearance process—and I've been talking about this or I've been a part of conversations for 30 years since I used to work on the HASC [House Armed Services Committee] staff on this issue.

But we have got to do something about that because it's increasingly difficult to get a workforce in on the national security side.

Also, with inflation—not just with technological development on the commercial side over time but with inflation there's a growing divide between what we can pay on the defense side and what they can pay on the commercial side.

The Department of Defense requires some pretty strict definitions, requirements for the workforce that don't necessarily align with what we think we need and what we can hire from the outside.

So there's no silver—single silver bullet for this and, in fact, I think it's—if we don't get at it for the country as a whole we're going to continue to have problems in the defense industrial base.

Mr. LAMBORN Well, we're going to certainly need the help of all the people in your association.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from New Jersey, Mr. Norcross, for 5 minutes.

Mr. NORCROSS. Thank you, Chairman, and to you for holding this hearing, and we are only scratching the surface on this issue. It is complex. It's what we have been doing for years.

Mr. Wittman and I have traveled extensively and it's not unique to this country about the industrial base and, in particular, the workforce. We are timing out of those who have grown up with the idea of working with your hands was noble.

We all understand that, the narrative that's going on, and I hear it every day in Labor and Education is you got to go to college in

order to make it in America and that somehow if you work with your hands you are less than.

Well, the first thing we can do as a nation is give credit to those who want to work with their hands and their head. But parents, guidance counselors, teachers, from very early age are telling them college is the way to go. And that's true for some but, certainly, not for all. We have the ability to change that.

Our industrial base, I hear about the signals and the budgeting. Couldn't agree more. We had an opportunity and had it for 4 years trying to change the Buy American provisions. We can't buy it all ourselves. We need those trusted partners.

But we can incrementally build it back to where it was. We have offshored so much of our supply base over years. It's not a 1- or 2-year. If we had followed this—and we'll have another opportunity this year—it sends your demand signals that you're asking for. We don't have to get to a hundred but we have to build from that.

So my question to each of you very simply is, in your view what role does government have versus the commercial industry in managing the risk that we are talking about.

We have come from a just-in-time supply base, which means you don't have anything sitting on the shelf, to right now we're hearing the other end of it where we can't get it because it's not just-in-time. Whose responsibility and where does that line go?

So, Mr. Fanning, if we could start with you.

Mr. FANNING. Thanks for that question.

I think, as I said in my opening statement, the defense industrial base has a single customer and response to that customer, and I think there are—Secretary Norquist said two things. We can stockpile, we can build surge capacity, and there's a third thing we can do that we're doing, which is industry and the Pentagon working together to identify when we mobilize what is it that we need to surge, because as Ranking Member Smith said we can't across everything we buy stockpile and build in surge capacity.

So if it doesn't meet the level of wanting to stockpile or paying the extra to build surge capacity in, we can break down what those items are that we need when we mobilize, when we surge, figure out what are the long lead issues in there. Is it workforce? Is it materials? Is it parts? Is it tooling? And make sure that we have those elements ready.

Mr. NORCROSS. Yes. So the explosives and the accelerants—4 years ago we started changing that. If you go to any of these plants around our country, it's a roll back to World War I and World War II, literally. So the GOCOs [government-owned, contractor-operated] address that issue but who ultimately bears that responsibility?

Mr. Norquist, you've been in the middle of this.

Mr. NORQUIST. Sure. So I think when you look at quality, personnel, and so forth, those are the responsibility of the company. But many of the conflicts you raise are strategic risks and it gets back to the thing that Ranking Member Smith made, which is you can't cover everything.

So what is it that is the highest risk? Is it a—based on models and wargaming, is it munitions that you're afraid of running out of? Is it certain platforms? Is it the supply [inaudible]?

You have to model that to be able to decide where are you prioritizing the investments, where you're going to pay to have a GOCO because you want that extra modern facilitization or where is it that's worth having surge capacity.

That's so closely tied and that's the reason we're talking about this, which is because we pivoted to a high-end fight all of those risk calculations are changing. Before we modeled it based on the types of threats we had.

We're now facing a different one. That's why I think that's essential to the government to say these are the risks we want to pay and to reduce and this is how we intend to do it and that's, I think, where the combination comes together.

Mr. NORCROSS. Thank you. In our last 30 seconds, you.

Mr. PAXTON. I was going to say, on some of the surge capacity that we see the government buying large infrastructure be it a dry dock there's language in the fiscal year 2023 NDAA that said, hey, let's look at the best case analysis for what you're going to do with that dry dock. So, we support surge. We understand that it's a necessary aspect for the Navy. But we just don't want to be in competition with those assets.

Mr. NORCROSS. I yield back. Thank you.

The CHAIRMAN. The Chair now recognizes the gentleman from Virginia, Mr. Wittman, for 5 minutes.

Mr. WITTMAN. Thank you, Mr. Chairman. I'd like to thank our witnesses for joining us.

Let me begin by saying how concerned I am about the messaging coming out of the Pentagon, especially this past year where they made some comments about the industrial base. The Department of the Navy said that they do not believe the industrial base can deliver the three *Arleigh Burke*-class destroyers that were authorized and funded this past year. To me, that's deeply concerning.

I want to get some perspective from all of you all about the foundational aspects of our industrial base. I believe that the industrial base is given clear objectives, understanding what the procurement process is going to involve in the long term, that they will be able to invest in their workforce, be able to invest in infrastructure, be able to make the investments necessary to scale to consistent production over the years.

And I want to begin with Mr. Paxton. Can you give me your perspective about how inconsistent and wavering procurement objectives from the Pentagon affect the industry's ability to be able to do the long-term construction elements of our defense budget that it's called upon to do and especially, too, when, you know, the Pentagon speaks out of both sides of their mouth.

Says, well, we need all these ships or we need all these aircraft or we need all these platforms, yet we don't believe the industrial base can deliver, and then also provide inconsistent objectives in procurement.

Mr. PAXTON. Yeah. Well, thank you for this committee and the work they did on delivering those ships in the budget.

I will say this. The question of capacity comes up often and if you took a poll of the private shipbuilding industry and ship repair industry they would tell you we have underutilized assets. We have not utilized assets at all.

So I think there is capacity in the shipyard industrial base across new shipbuilding and ship repair and I do think in relations to whatever the demand signal coming from Congress we're going to meet it. We're going to meet it because we're going to sequence our yards to be more productive, we're going to train up the workforce, and we're going to deliver those assets.

So I think private industry fundamentally disagrees with the assertion we don't have the capacity.

Mr. WITTMAN. Got you.

Mr. Norquist.

Mr. NORQUIST. So I would say that think about what the signal is, right. If the requirement is three and you say, I don't think the industry can do it, we'll do two, then you've signaled to the industry do two. You've sort of given yourself the self-fulfilling answer.

And we run into that a lot when either the administration makes a request and vice versa and you've signaled to the industry, regardless of what you're hearing somebody say they need, you're only going to get two because you can only produce two.

Well, the thing that limits them most of all is not having a contract for the third, you know, it doesn't have to be a ship, it can be a plane, whatever it is. But when you sign the contract, they immediately know, I need to increase production, and when they see that there's more coming they realize, I'm going to start having a backlog if I don't expand.

So I am more concerned with being clear about what the Nation's requirement is and we need X number, and then going to industry and say, now deliver, and when they can see those showing up in contracts they can then safely make the investments to increase capacity. But sometimes we end up signaling the exact opposite of what we intend.

Mr. WITTMAN. Mr. Fanning.

Mr. FANNING. I'd add consistency as an element here. I spent far more years of my life in the Pentagon than I have with industry and I'm shocked at what I didn't know at the time and one of those things is consistency.

One of our members is a shipbuilder, talks about the Navy slash chart where, you know, at the end of the years of doing the budget the number of whatever they're going to build is three, then it's two, then it's three.

And it's in industry's interest to meet the needs of its customer. It just needs that clear signal and a consistent signal so there's trust and belief on the industry side.

Mr. WITTMAN. Got you.

Mr. Paxton, if the Pentagon does deliver clear budget and procurement objectives, give me a sense about what that means to the industry in simple things like developing workforce, doing long lead time material purchases, making the investments in the yard so that capacity is there to make sure that the industry is able to deliver.

Mr. PAXTON. Yes, sir. I will say that's going on as we speak. Even with those slash budgets, those inconsistent numbers, our yards went out and spent, you know, billions in updating our facilities so we can meet this demand fully anticipating that, you know, numbers have been inconsistent. We have done that.

So not giving you too much more other than the fact that the industry is making those investments as we speak, sir. And the last thing I'll say, recruitment of workforce—you can look around the Nation, it's thousands and thousands in different places where shipyards are having hiring days.

Mr. WITTMAN. Mr. Chairman, I yield back. Thank you.

The CHAIRMAN. The Chair now recognizes the gentleman from Arizona, Mr. Gallego.

Mr. GALLEGO. Thank you, Mr. Chair.

Mr. Fanning, thank you for your testimony.

In your written remarks, you recommend that Federal hiring practices for contractors shift from a degree requirement to a skills-first hiring practice. This is an area that I'm very interested in across all Federal agencies.

Can you elaborate on the hiring changes you've seen in the commercial aerospace industry? Could you also share any results that those hiring changes could produce and where the defense aerospace industry could benefit from adopting these changes?

Mr. FANNING. Well, first, thank you for the question. First, I'd say, you know, the industrial base is shared. The supply chain is shared. That's something we saw very acutely during COVID, and it can shape what companies do, how much work they want to do on the defense side or the nondefense side and workforce is a part of that.

But there's much more flexibility on the nondefense side for companies to hire workers with certain types of skills that they can train, skill up into something else, or without skills that they can do.

And it goes back to Congressman Courtney's question earlier about—or Mr. Norcross, maybe—about apprenticeships versus college degrees. This gets baked into the input part of the contract and really limits the defense companies who are already struggling to build the workforce all up and down, particularly at the smaller company level.

So, I think trying to free that up a little bit and recognize a little bit more that the workforce has changed, the future of work has changed, how we train and educate that workforce has changed.

We need—we need it at all different levels in the defense and aerospace industry—workers that come out of apprenticeship programs, those that have higher education degrees, very skilled workers.

And one thing I'd say about apprenticeship programs too is it helps with retention. I had a shipbuilder yesterday say that they have much higher retention with workers that come through an apprentice program and have the training and the understanding what they're getting into than those who walk off the street.

Mr. GALLEGO. Thank you for being here.

I'm proud that my district in Phoenix is home to semiconductor and microelectronics research, development, and manufacturing. These technologies are essential to every electronic device and are crucial to a country's ability to maintain a competitive edge over our foreign adversaries. And thanks to CHIPS and the Science Act signed into law last year, we [will] continue to boost our Nation's

semiconductor sector, providing good jobs and helping to combat our reliance on China.

Can you speak to the importance of the semiconductor supply chain and domestic investments for the defense industrial base?

Mr. NORQUIST. So the microchips supply chain is absolutely essential for several reasons.

First of all, the—with modern technology those chips are in a wide range not just of the systems that we field but in the systems that build the things that we field, and so when you see a disruption you can have a disruption both of the final product and a delay in everything before it.

But you also have a second challenge, which is, even more than most other things, microchips have the risk of tamper and you've got to be certain of the reliability of your supply chain, the reliability of the items.

This is why it was so important when Congress passed the CHIPS Act and said this is one place that is worth us protecting our supply chain producing the reliability.

Now, defense is actually only a small consumer of those but it is an essential part of the same risks and challenges that defense faces as well.

Mr. GALLEGO. Excellent. I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from Tennessee, Dr. DesJarlais.

Dr. DESJARLAIS. Thank you. This is for all of you, and we have covered some of this but we'll just delve into it further.

In my discussions with industry the biggest obstacle to meeting our production goals seems to be workforce. We are seeing some encouraging signs, however, including data from the Bureau of Labor and Statistics indicating that more graduates are choosing STEM degrees than were a decade ago.

Are these encouraging signs being seen on your end as well and is the—or is the demand outpacing these growing graduates?

Mr. FANNING. I'll go first. Thank you for that question.

There are encouraging signs, but it's a big hole we're trying to dig out of and it's compounded now by inflation, I think particularly on the defense side when there are contracts without adjustments. Because on the nondefense side, particularly companies that are involved in both, they can just move their work and their efforts and their sales over to that side and change their rates on the nondefense side.

So there are encouraging signs but we—I think we still have a long way to go and I suspect it's going to be a problem we're focused on for the duration of our lifetimes.

Mr. NORQUIST. So when we surveyed, sir, our work—our membership, 82 percent said it was difficult—somewhat or very difficult to get STEM, which is even higher than their concern over clearances, which shows you the demand and the market competition there.

Part of it was losing out to private sector firms who when there's a shortage they raise the rates and also that the—according to the Bureau of Labor Statistics the demand for STEM positions is going to go up twice as fast as the average.

So this is one where there is a nationwide demand signal and our players—our membership is competing in that market. But they do find it very difficult.

Mr. PAXTON. Yeah. I would just say that our shipyards participate in STEM scholarship programs. They go out to local technical schools and community colleges and work with them on that. So we see the need and the demand and we're working on it.

Dr. DESJARLAIS. Okay. And also what are you doing to retain some of the graybeard older population in the workforce. As we reopen these production lines and relearn how to fight an industrial war for the first time in decades, I would think it becomes only more vital to retain some of the institutional knowledge. So in addition to the recruitment efforts you're all undertaking with the STEM grads, what retention efforts are you using to maintain the industrial knowledge during the—this critical moment?

Mr. FANNING. In some industries, in particular, that is a focus, maintaining—especially as we have lost some of that apprenticeship capability in the country, maintaining some of that experienced workforce.

It was made harder during COVID when we had a number of people who just decided to leave early and retire early. But companies are doing what they can to try and increase retention with packages, with bonuses, what have you, to maintain that skill set as we start to surge.

Dr. DESJARLAIS. Okay. I'll just add I'm constantly hearing from companies and small businesses in my district about the issue of wage inflation and I know oftentimes the defense contractors operate on fixed price contracts where there's very little opportunity to pass costs on to the government.

As we gradually see economic price adjustment clauses no longer being included in the defense contracts I'm curious to know how you all are dealing with these increasing labor costs in retaining your workforce.

Mr. NORQUIST. So, as you point out, the absence of those economic cost adjustments in existing contracts is a real challenge because often the government will award a 5-year contract and when there wasn't much inflation the out-years went up 2 percent a year.

So small businesses I've talked to, their labor rates are now locked for 4 years and they know that they can't keep those employees, you know, after we've had 9 percent inflation, at 2 percent raises going forward.

So, you know, part of their challenge is—in new contracts they can get awarded at the new rate or new ones if the government includes economic cost adjustments. But those old ones really put them in a bind in their risk of losing their workforce.

So that's one of the challenges particularly small businesses are facing in this environment.

Dr. DESJARLAIS. Okay. And I also understand that a previous barrier to hiring was the security clearance process.

As the backlog for security clearances continues to shrink, are you finding that this barrier has become less pronounced or are there still other barriers like cost of—or finding qualified applicants that are hindering you all?

Mr. NORQUIST. So, first of all, there are other barriers but I would like to flag this because, you know, there's a lot of things in this hearing we're talking about that are challenges.

The timeline for top secret clearance went from 452 days to 120 and from secret from 244 to 81. Now, you still have to have a clearance, which is a harder part than a commercial. But that was an area where there's tremendous focus by this committee and the government and there's been progress, and when we survey our membership that shows up.

So, it's an obstacle. It's a challenge versus jobs that don't require it. But it is significantly better than it has been in the past and it shows that when the industry and the government focus on something we can really help move it.

Dr. DESJARLAIS. Okay. Thank you all. I yield back.

The CHAIRMAN. The Chair now recognizes the gentlelady from New Jersey, Ms. Sherrill, for 5 minutes.

Ms. SHERRILL. Thank you so much.

As many of you know, nearly 3 years ago this committee put together a task force focused on defense critical supply chain issues. And Secretary Fanning, thank you so much for your help on that. It's good to see you again.

One of the recommendations of that task force, which was included in the fiscal year 2021 NDAA, was a requirement that the Department create a plan to reduce reliance on critical materials sourced from adversarial nations and that was nearly, again, 3 years ago.

So last month, I received a briefing at Picatinny Arsenal. It was really clear how important their work on the supply chain is and with their hands-on understanding of the munitions development, supply, and logistics, their expertise is tremendous and, really, they are key partners, I think, in leading this.

However, while we saw some good signs—antimony, for example—I'm incredibly concerned that we aren't making progress fast enough.

So, Secretary Fanning, Secretary Norquist, Congress has shown itself to be willing to take action on the issues related to workforce and our supply chain. I know our chair has workforce issues front and center.

Mr. Courtney had a great op-ed on that. I know Mr. Norcross, my chair last year in the Tactical Air and Land Subcommittee, has been laser focused on GOCOs and COCOs [contractor-owned, contractor-operated].

But we're just not moving fast enough in these areas and especially when it comes to some of those critical materials that we are tracking to sources that are really concerning. What other authorities and resources do the Department and industry need to really make serious headway there?

Mr. FANNING. Well, thank you. This is, obviously, a very critical issue and I appreciate your attention on it.

Part of the difficulty is we found ourselves where we were relying on China for those minerals over many years, giving up our capacity and our ability to do that for many reasons, as has been pointed out—the expense, the environmental impact of the processing of

these materials. So there isn't that capability and there isn't necessarily a market for that capability to grow organically on its own.

So one of the important aspects is investment—government investment—to get that market going to create that domestically or among our friend-sharing, among our allies, in order to provide—to create that for our companies in the industrial base as a supplier.

And so I think it's a sense of urgency on the part of all of those that are involved. You, clearly—this committee—has shown that but now it's an issue for the Federal Government to help create that market—which is not easy to do, I'll grant that—but if this is a priority of ours, which it is, in order for us to move away from China faster.

Mr. NORQUIST. So one of the challenges when you have an issue that is this complicated is, where in the Pentagon does somebody feel that they own it and have both the authority and the leadership to be—to drive it.

One of the tools you have that's coming along that's helpful is modern data analytics because one of the challenges in the supply chain is just seeing it, being able to map it.

In many areas that would have been vastly harder to do with as complex a world as we have. But data analytics is letting people see into their supply chain better. That can go a long way.

Many of the authorities—DPA [Defense Production Act] part three and so forth that allows people to make these estimates—they exist if everyone can agree on where the problem is and what needs to be done.

So part of the mapping in those is to help make it clear that this is a particular choke point, this is a particular risk, and the ability to onshore it or whatever it is will pay off, right, and then you can help move it. But I think, hopefully, that with advances in some of the data analytics they can get further progress on that issue.

Ms. SHERRILL. Thank you so much.

And then to Mr. Paxton, you know, one of the first things I asked when I came—of our shipbuilders when I came to Congress and was—Mr. Deluzio, your head—I'm kidding. Not used to the second row and this angle.

But one of the things I first asked our shipbuilders was, you know, if you're facing these cold supply chains why can't you build commercial, and certainly something that I've seen throughout COVID with some of the most resilient businesses that I have in my district, they had some combination of military and commercial technology that they were selling.

And so when we see these disruptions, when we know how bad it is to go cold, when we see that resilience, and then when I get a brief in this committee that our competitors are doing just that after being told by our shipbuilders that we somehow could not do that and, you know, I just want to understand what is the hang-up there because it seems like a good solution and it seems like our competitors are doing it.

Mr. PAXTON. I will say some of our shipyards are doing that. Now, it's out of the scope of some Navy shipbuilding programs but we certainly have shipyards that do that.

If it's Coast Guard shipbuilding, they cut their teeth on commercial work. We do have some traditional Navy shipbuilders that would have had a gap about 8 months if they didn't have commercial work, but they had that commercial work in there and that got them past 8 months.

A shipyard will not be in business for 8 months if they have to maintain their employment and have no work, and so that has happened in a traditional Navy shipbuilding yard.

The last thing I'll say is military SPEC [specification] is serious work and that's work that a lot of our shipyards are focused on because that's what their customer demands.

Ms. SHERRILL. Thank you. My time has expired. I yield back, Mr. Chair.

The CHAIRMAN. The Chair now recognizes the gentleman from Mississippi, General Kelly.

Mr. KELLY. Thank you, Mr. Chairman. Thank you, witnesses, for being here. And I've missed a lot so if I double tap, but Mr. Wittman stole all my good questions.

But just—I just want to double tap on how important the consistency of requirements is to our industrial base, number one, to produce in bulk and to bring the cost down for the United States Government and the manufacturer and it does everything.

I want to talk just a little bit about that in a different sense. Many of our services like to get a product, they tell you what they want, and then they want to start making changes because there's a new shiny object. I can't update my iPhone every time it changes or I would never have an iPhone, if I get the newest one.

How much does that hurt you when they change the requirements and how much does that cost the American taxpayers?

Mr. FANNING. The lack of consistency is a real problem. I'd go back to the start of your question about even the requirement process itself. Increasingly, as new technology is developed outside of the Department of Defense, we don't always know what we want inside the Department of Defense and so I think it's important to open up that requirements process a little bit, be open to companies, to industry, on ideas that they have, and then to be consistent but also allow mechanisms to modernize in a different way than we used to.

Your phone is a perfect example of that. We used to think of modernizing as buying something for a generation, putting new things on it. But now modernization takes place while we sleep. So that lack of consistency makes it hard for industry to put its investments in place.

Contracts are the most obvious way, obviously, but companies that wait for a contractor are behind the curve and they know that. They look at strategies. They look at statements. They have conversations.

They want to line up their industrial investments in advance of the contract so they're ready. So that consistency is important because without it, it increases the risk of making those investments.

Mr. KELLY. So how do we stop the good idea fairies? And I'll use an example. The landing ship medium or the light amphibious warship—the LAW—you know, it's not made to be a combat ship, okay.

But now we want to say, well, it's not this or it's not this survivable.

I mean, we try to add purposes to it to build it to something that it was not intended to be. We did that with the Humvees in the Iraq war. We went from something that was to move around rear areas, light-skinned, to not be a combat vehicle, and tried to turn it into a combat vehicle, which it will never be.

So how do we stop these good idea guys in back rooms who go, hey, we can add this, we can add this? How do we stop that? Because that costs us tremendous dollars and readiness.

Mr. NORQUIST. So one of the things is internal to the Pentagon in those decision processes is to require the requirements changes and the dollar costs be dealt with at the same time, right.

If you're going to change the requirement you've got to at the same time explain the dollar cost and how that's going to be absorbed and what the offsets are. When you can have—you gave examples of taking something for a completely different purpose.

The place you can manage is when you say in 2 to 3 years there will be a block upgrade of this platform and then everybody knows to buy parts to get to until that point. Everyone knows at that point there is going to be an upgrade of some piece of it.

Those are much more manageable. Those, the supply chain knows how many to make. It's, as you point out, when you're trying to take one thing and use it for another you can often drive the challenge.

Mr. KELLY. And just real quick, you know, I mean, the Navy owes us a ship plan, not a multiple choice of what we—you get to choose. They owe us what we're going to build the next 10, 20 years and some type of cycle that you can rely on as being reliable. These are the things we're going to build so you can maintain those workforces, do them in bulk when possible, and bring them out on a schedule on time.

The final question I want to ask is what is industry doing? China is in all our business. They're in intellectual property. They're stealing intellectual property. They're embedding in all of our security things in the industry.

What is industry doing to combat China and understanding that they're a threat to national security? Even in the civilian shipbuilding or airplane building modes what are we doing to kind of keep them out or to shield us from the threats of the Chinese government?

Mr. PAXTON. I'll take it from the beginning. I will say we are suffering as an industrial base from heavy subsidization in China. That's been a concerted effort for the last 20 years and our supply chains are weaker from it. And, certainly, we don't build commercial assets for international commerce because we can't compete against the federal—I mean, the Chinese government.

Mr. KELLY. And real quickly on that same thing, are you identifying to DOD what supply chain issues, critical resources, critical assets, that we're short of in order to maintain ship and airplanes and building them? Is that communicated to DOD so they understand what those restrictions are?

Mr. FANNING. There are, yes, ongoing conversations at the Department of Defense among the primes—the companies that work

with the Department—about where they have concerns in their supply chain.

Mr. KELLY. I yield back.

The CHAIRMAN. The Chair now recognizes the gentlelady from Texas, Ms. Escobar, for 5 minutes.

Ms. ESCOBAR. Thank you, Mr. Chairman, and thanks to our ranking member and thanks to our witnesses. Gentlemen, thank you for being here with us. Good afternoon.

I represent the great community of El Paso, Texas, which is home to two tremendous assets. The first is, of course, Fort Bliss, which is the Nation's second largest military installation and the largest joint mobilization force generation installation in the Army.

The second key asset for us is the University of Texas at El Paso, which has a phenomenal engineering department and has been a national leader on additive manufacturing. And I have seen firsthand the benefit of tapping into the brilliance of our higher educational institutions in order to capitalize on the talent there and the innovation there and to use it for our national defense and, indeed, even for some very practical purposes.

One of the things that has been going on at Fort Bliss in my district is the creation of 3–D barracks, barracks that have been built using 3–D printing capabilities. It's incredible.

I've toured them, felt them, seen them, walked around in them. It really is amazing, especially as we think about our outdated facilities that have not seen enough investment.

And so I'd like to ask, actually, all our witnesses and maybe starting with you, Secretary Fanning, could you give us input on utilizing additive manufacturing capabilities to shore up the state of our installations and our shipyards?

Mr. FANNING. I think there's still tremendous untapped potential in additive manufacturing. On the manufacturing side, you know, it started with how can we manufacture a part differently and now they're completely reengineering things because they can make parts in ways that they never imagined before, which allows them to reimagine what it is they're building to begin with.

And so, certainly, I know from my time in the Department of the Army that we were thinking about that, how you could do that for installations on—even on a deployable basis. NASA is looking at it for Mars and the moon. And so there definitely are applications for that for installations, which absolutely are underinvested in—one of the many things that are underinvested in over years.

Ms. ESCOBAR. Thank you.

Mr. NORQUIST. It is a fascinating technology with incredible capability. I mean, one of the most common problems we have in defense is we want small quantities of unusually shaped things as a spare part and it's hard to convince somebody to put together a manufacturing line to do that.

But with additive manufacturing somebody can say, give me the digital design. I will print one, two, three, whatever you want. So those changes are really driving consequences for housing, for parts, and for other things. And I think there's a long way to go and this is why university research is so valuable to help us understand what is possible and then industry and the Department can take advantage of that to really change the way things work.

Mr. PAXTON. Thank you for the question.

I would also add that right now we're in the process of additive manufacturing, 3–D printing still needs to be certified. So we're still kind of in this stage as it relates to shipbuilding. If you put that part in there it still has to meet military SPEC and we still need to understand how that's going to work over the life of that vessel.

So, we're in the learning phase. We're in the let's get there phase. But some of that stuff still needs to be tested to make sure it can withstand military operations.

Ms. ESCOBAR. And, really, to that point, I am very curious about what you all might think are some of the biggest obstacles to putting this potential on steroids, so to speak, how we can really capitalize on this in a more urgent way.

Mr. NORQUIST. I think you hit the key one, which is if everything has to be certified, right, if each piece needs its own certification process then you can't build one-offs.

Now, if the piece of equipment can be certified for what it produces, I think you're there. But that requirement to say I'm treating it like it's an assembly line that's going to produce a thousand, I want to test a sample, doesn't work if you producing one, two, or three.

And so I think that may be your largest obstacle. They may have others as well.

Mr. FANNING. I would—I would tie that back to the requirement process, too. You might be defeated right from the start where something is baked into the requirement process.

If you have the flexibility the certification process is an issue and I want to foot stomp on something David said. The quantities—we're a big—the defense industrial base is huge. But the quantities of some things it needs don't necessarily yield some organic growth, for chips, for critical minerals, or for the parts that you might be talking about in this instance. And so sometimes the limited quantities of things we buy make it hard to find a new source for them.

Ms. ESCOBAR. Thank you, gentlemen. My time has expired. I yield back.

The CHAIRMAN. The Chair now recognizes gentleman from Nebraska, General Bacon.

Mr. BACON. Thank you, Mr. Chairman, and welcome to all three of you. It's great to be with Mr. Fanning. We serve on the Air Force Board together and you do a great job. So, appreciate that.

The state of the defense industrial base is, obviously, weak. I think we get that from the briefing today, and we see it with Ukraine. Now we're seeing it with Taiwan. Hard to do both at the same time. And so this is a strategic issue with strategic consequences that we got to get right.

So, my first question for Mr. Paxton. The CNO [Chief of Naval Operations] recently highlighted the inability of the defense industry to keep up with the shipbuilding requirements. So, for example, they want three *Arleigh Burke* destroyers. The industry can only do about two. When it comes to attack submarines we need two a year. We can only get one. How do we get this right?

Mr. PAXTON. Well, I think from the get-go we want to get the requirements right. We want to make sure we're, you know, in a

partnership together with the Navy, that we know exactly what we're going to go build and go build it.

I do think industry would disagree a little bit and say if we had that demand signal previously, we would be ramping up already. We can certainly meet three DDGs [guided-missile destroyers] a year and we can certainly do the work we're doing on submarines.

But there—and also industry wants to work with the Navy on this. It should not be an adversarial type scenario. Industry is making investments in their facilities constantly, and their workforce. So I think there's a disagreement that we're not meeting that mark.

Mr. BACON. Okay. So it sounds to me like right now we're not meeting it but we have the potential that we can meet it.

Mr. PAXTON. Sure. I mean, and I think, again, we would probably disagree that we're not meeting it right now. I think there's things that are inherent in the shipbuilding and ship repair that cause certain schedule delays and certain issues that aren't all industry's fault.

Mr. BACON. One of the things I read recently, and it's alarming, that China has 10 times the shipbuilding capacity that we have. I think as Americans we need to think about that. I think that's unacceptable.

Mr. Norquist, the Department of Defense spent $34 billion or, roughly, 4 percent of their total budget, on innovation spending and of those projects funded with this innovation spending only 3 percent resulted in operational capability being delivered to the warfighter.

So what recommendations would you have for changing our R&D process to increase the return on investment?

Mr. NORQUIST. So, one of the important things is to make sure that those who are funding research and development are connected with those who have responsibility to field systems and requirements, and so one of the challenges is making sure they're meeting.

So the answer is if somebody succeeds in this research initiative, are you going to pick it up. And what we have found in the past is, in some cases, that understanding wasn't there. In others when it was, the question is, would—did you just say you're going to pick it up or did you set aside money to be able to pick it up.

And so one of the challenges becomes how do you set aside both—how do you build that connection between those two communities and the other is how do you set aside, like we do for S&T [science & technology], the money to pick up that result when it succeeds to allow them to start.

Now you go to the service and you got to finish funding it in the out-years if you're going to pick it up. But that's, I found, was the most common breakdown; either the research community and they hadn't talked with the acquisition or at the point of handoff the person says, well, I don't have money in my budget this year but maybe in 2 years I can, at which point the small businesses is going somewhere else. That would be my primary recommendation.

Mr. BACON. So is this, like, an organizational problem? We just don't have the—have them linked correctly?

Mr. NORQUIST. Part of it is. I mean, part of it is making sure that those groups—I mean, if you think about it, we do a pretty good job in the Department of Defense, or they do, when they have to have an airplane at a base with crew and a facility by a certain point in 3 years, right. Those things line up.

So those communities are able to talk. The question is, what is it about when we research things that when they have breakthroughs it isn't quickly picked up and how do we make that go faster.

Mr. BACON. I did have a question for Mr. Fanning on rare earth elements but I think you've already addressed that. I would say that we do have this—that capacity in our own country. So, it just takes willpower and a plan to do that and we can't rely on China.

But I won't ask you a follow-up because I think you addressed it very well already. So, with that, I appreciate all three of you. I yield back.

The CHAIRMAN. On that point, I would like for you all to give it some thought and follow up with the committee and let us know if there's something we can do in the NDAA that would facilitate or aid companies in that processing lane to be able to stand up more capability for that processing to take place either in CONUS [continental United States] or at least in our hemisphere where we have some friendly allies.

It is completely unacceptable that we're so heavily reliant on China for those minerals as well as their processing.

[The information referred to can be found in the Appendix beginning on page 127.]

The CHAIRMAN. The Chair now recognizes the gentleman from Pennsylvania, Mr. Deluzio, for 5 minutes.

Mr. DELUZIO. Thank you, Mr. Chairman. Gentlemen, thanks for being here today.

I want to focus my question on the Defense Department's 2022 report, I should say, on how consolidation of the defense industrial base poses serious risks to our national security. Weak or, frankly, nonexistent antitrust enforcement, in my view, allowed this to happen and here's where we are.

Through vertical and horizontal acquisitions since the 1990s we have gone from 51 to only 5 aerospace and defense prime contractors—a 90 percent reduction. Over that same period we have seen suppliers in a bunch of categories disappear, depriving the American people of competition for key elements of our defense—tactical missile suppliers 13 down to 3, fixed-wing aircraft suppliers 8 down to 3, satellite suppliers 8 to 4. We have got 90 percent of our missile suppliers—excuse me, 90 percent of our missiles coming from three sources now.

This defense industry consolidation, this lack of competition, it's leaving us, I fear, ill-prepared and harming our national security and readiness.

One reason I was eager to come to Congress and join this committee was to dig in on how consolidation in so many industries, including our military's industrial base, is hurting our country and in conflict with our economic goals to bring more union jobs, manufacturing, and supply chains back to this country.

2019 piece from the American Conservative, Matt Stoller and Lucas Kunce, they wrote, "Despite spending large amounts of money on weapon systems the American defense establishment often gets substandard equipment. It's dependent for key sources of supply on business arrangements with potentially hostile powers. The problem is so big, so toxic, and so difficult that few lawmakers even want to take it on."

So today, gentlemen, my question to each of you is the same. What do you see as the gravest threat caused by this consolidation in the defense industry?

Mr. Fanning, I'll start with you, sir.

Mr. FANNING. Thank you. An important question.

I think—I don't think consolidation is what's to blame for the shrinking number of companies doing business with the Department of Defense and, by the way, if you look at nondefense companies doing business with the Department of Defense that's shrunk even more.

I think consolidation is, first of all, at the prime level was by design in the 1990s when the Pentagon realized that we weren't going to be buying as much. Part of competition is having competitions and the Department of Defense determined we had too many companies for what we're going to be buying in the future and started the process of consolidation.

And consolidation can be a very important tool for growth for large companies. It can be an important tool for small companies to access capital, to access workforce, processes, expertise, or so forth, to continue to develop what it is that they're growing. And it's an important part of every industry's evolution.

I think the real thing to look at in the DIB is why is it so hard for new entrants to break in because I think it is increasing. The Department has always been difficult to work with for obvious and important reasons. But I think, over time, it's becoming increasingly difficult. And as more technology is developed outside of the Department versus the 1960s, it's ever more important that we find ways to let those new entrants in and grow the DIB with new entrants. That's a part of what goes hat in hand with consolidation.

Mr. DELUZIO. Mr. Norquist.

Mr. NORQUIST. Yes, I think when you start, you'll—most of those in that report—most of those mergers and acquisitions occurred several decades ago, driven, in fact, by the drawdown after the Cold War.

What you've seen mostly in the more recent time is firms—a drop in firms willing to enter the defense industrial base or firms who are already here leaving, not necessarily primes but others. And I think that gets back to the question of one is, what's the—if you're not buying as many helicopters you won't have as many companies that make them because when one person loses they can't sit out of the business for 4 years very easily.

But for the smaller firms, the ones you're trying to grow to come in, what are the barriers that we are putting in their way and how do we try and remove those because part of the way the private sector grows competition is new firms keep entering and new disruptors keep showing up.

And so one of the questions is are we properly making it suitable for those firms to come in. There are certainly mergers and acquisitions where somebody is trying to protect the loss of a supplier who might otherwise leave the industrial base or there's a technology they think they can make more effective.

But I would focus on why are people not staying and how do we draw people in, because that's the best ways to sustain competition.

Mr. DELUZIO. Thank you. Mr. Paxton.

Mr. PAXTON. Yeah. I would just say from the shipyard perspective, again, we're heavily capitalized intensive organizations. We're dealing with facilities that have working waterfronts where oftentimes even if you're not a Navy shipbuilder, if you want to get into some of the maritime supply space and shipyard space you don't even have access to it from a geographical standpoint.

So there's some of that limitations that exist in our kind of small piece of the pie.

Mr. DELUZIO. Gentlemen, thank you. I yield back, Mr. Chair.

The CHAIRMAN. Yeah. Mr. Deluzio brings up a great point and we're going to pay more attention to this. Not only are these companies getting gobbled up by the primes, we have got to figure out a way to help these small and mid-sized defense contractors be able to grow without being consumed and so that we do have a broader base—industrial base, and we're going to be having some dialogue about that as we move forward. But thank you for talking on that, and I share your concern about it.

The Chair now recognizes the gentleman from Texas, Admiral Jackson.

Dr. JACKSON. Thank you, Mr. Chairman. I appreciate it, and thank you to our witnesses for being here today. I'll be brief. Most of my questions have been asked and answered today. So I appreciate you-all's time and your expertise.

My only question today is yesterday we had our first hearing and it was focused solely on the threat that's posed by the Chinese Communist Party.

China is able to innovate and acquire weapon systems for their military at an alarming rate, much faster than we are, of course. Frequently, these Chinese weapon systems look very similar to our platforms or those of our allies and we have been told, you know, that a large part of that is, you know, just they don't have the bureaucracy we have. Obviously, they can get right to the point and, you know, they're gathering information from us.

So, Mr. Norquist, can you talk to us about the effect of theft and espionage by our adversaries on our defense industrial base? What defense—what are the defense contractors doing trying to defend against these activities and how can we on this committee help in that effort?

Mr. NORQUIST. So I think the challenge when you're dealing with a country like China that is not only able to compete industrially and build its own technologies but it steals to stay close, right. Wherever you're headed it's actively stealing.

There's a number of things that are going on and I'll say that both between the Department and the industrial base. One is alerting firms straight up to the risk of their IP [intellectual property]

of when they do business in China, when they're required to share things, and what vulnerability that creates so that they don't realize they're just handing something over.

There's been work to try and protect innovative small businesses that are developing from having investment capital coming in from overseas and we have some rules on it.

The second one is protecting individual companies. We put a lot of emphasis in our association with our membership on cybersecurity and the point is, yes, the Department is developing CMMC [Cybersecurity Maturity Model Certification] cybersecurity standards.

While they're still working through that don't wait on the standard. Everybody needs to constantly be securing their network to protect yourself and that's a major area of emphasis to be able to protect those organizations in that way.

Dr. JACKSON. Thank you, sir. I appreciate that.

And with that, Mr. Chairman, I don't have any further questions. I yield back.

The CHAIRMAN. The Chair now recognizes the gentlelady from Hawaii, Ms. Tokuda.

Ms. TOKUDA. Thank you, Mr. Chair.

You know, in the written testimony as presented today—thank you for being here, by the way—all three of our witnesses did call attention to the harms imposed by continuing resolutions and budgetary uncertainty on our defense industrial base.

You know, last month our country reached our debt limit and we are now heading towards a potential default sometime early this summer unless Congress acts. We all know that a default would be devastating. But even the prospect of default over the next few months will generate a lot of uncertainty and anxiety for the industry.

What are the impacts of continued uncertainty around the debt limit on our defense industrial base, especially small businesses and our workers? How urgent is it that Congress act to get the debt limit issue resolved?

Mr. FANNING. I think none of us really knows what would happen if we don't resolve the debt ceiling issue. But for our industry and for our members it adds another variable to the disruptive budgeting cycle.

I mean, we are sort of used to not knowing what the top line will be, although there's been some consistency lately, or when we'll get it—when a budget will be passed or how long the—we assume there's a continuing resolution.

You know, so the best case scenario is it's just a quarter rather than a year or longer than a year. And this just adds another variable to that equation that makes it harder to imagine how we're going to get to the end game. And so it's more disruptive from a planning perspective for industry.

Mr. NORQUIST. I'd agree on the comments on the debt ceiling and those types of uncertainties where people don't know what the consequences will be for other areas.

But you highlight as well, rightfully, the challenge with continuing resolutions and it comes up both in the form of hit the brakes, hit the accelerator.

Service companies, and there's one that we are working with, they get stop-work orders and so they lay off all their staff and then wait until the company is confident there'll be enough O&M to continue and then they get told to hire them back.

And so you have challenges recovering the workforce. You have times when the Department did signal it wanted additional munitions and then they couldn't do the ramp-up for the length of the CR [continuing resolution]. So that sort of hit the brake, hit the accelerator is very disruptive and this is just another example that folks have to deal with.

Mr. PAXTON. I concur with my colleagues.

I would say on Navy maintenance and modernization, the planning that has to go in there is impacted greatly with CRs, with budget uncertainty. We see starts and fits in that area.

Ms. TOKUDA. Thank you.

I want to kind of expand a little bit on that workforce issue. You know, there has been discussion in exchange for addressing the debt limit, some have floated perhaps deep spending cuts to balance the budget, looking perhaps out over the next 10 years, using fiscal 2022 as a spending level—as a blueprint.

Now, according to the Committee for a Responsible Federal Budget, without tax increases that could mean cutting 25 percent of government spending across defense and nondefense programs and if we left defense and veteran spending off the table that translates to 33 percent in nondefense programs, including Social Security and Medicare.

To that end, how would significant cuts in nondefense programs and health care, education—we have been talking a lot about workforce and education today—affect our defense workforce, our ability to attract, develop, and retain the talent we're going to need to basically innovate and create critical technologies, fill these jobs?

So, to that end, any response?

Mr. FANNING. I think for our industry—we're aerospace and defense—there are enormously important investments that are in the nondefense side of the house, too. But also, as you pointed out, building a workforce takes a very long time.

Anybody can be like me and decide to be a history major in college. But if you want to study STEM in college you have to have had a long track record of science and math to get there. And so many of these things are important in building the ecosystem in which we thrive.

But I think, you know, one of the purposes of this hearing is that we have determined that we have underinvested in the defense industrial base to have it shaped and poised for what we need, both now with what's happening in Europe but with any potential conflict that might happen around Taiwan.

Mr. NORQUIST. So, I think we all recognize deficits are real, they're significant, and there are consequences. But we have also seen what happens with sequestration on what it does to the Department of Defense, what it does to readiness, and particularly the cost of trying to come out afterwards, after we have seen, as was mentioned earlier, those readiness and O&M cuts go through.

And at the end of the day, your national security should be tuned to your mission and your requirements, and when those require-

ments go down the spending comes down and when those requirements go up they go up. Otherwise, you're creating unnecessary future costs to dig out of a hole you've just created. So, agree.

Ms. TOKUDA. Thank you very much, and I think you'll all agree with me that our people really are an asset. We talk about supply chain. Our people—our workforce—are part of that critical defense industry base. So thank you for being here.

The CHAIRMAN. The Chair will now recognize the gentleman from Florida, Mr. Gimenez, for 5 minutes.

Mr. GIMENEZ. Thank you, Mr. Chairman.

Mr. Fanning, would you—would you say that many of the—many if not most of the materials and critical minerals that we need exist in the United States?

Mr. FANNING. Yes.

Mr. GIMENEZ. Well, I submit to you, Mr. Chairman, that the problem is us, that we're schizophrenic. We're here in the Armed Services Committee telling you, hey, we got to get those minerals and, yet, there are other agencies within the Federal Government like the EPA [Environmental Protection Agency] that say, well, you can't get them because they're in some kind of land you can't touch, just like the Biden administration just took out, I think, tens of thousands of acres that we know those minerals are there and they say, you can't touch it.

And so, Mr. Chairman, I think we need to—we need to determine, okay, whether our national security, you know, takes precedence. And I'm not saying that you can't get those minerals without also protecting the environment. You can have both. I actually believe in a win-win scenario.

Mr. Paxton, when's the last time that the shipbuilders in the United States built a cruise ship?

Mr. PAXTON. We have not built a cruise ship in quite some time, sir.

Mr. GIMENEZ. When was the last time you built a supertanker?

Mr. PAXTON. We build a lot of tankers that have managed to work in domestic trades here in the United States, sir. We did that all through 2010, through 2012. When there was a demand signal that we needed to build tankers, we went out and built tankers.

Mr. GIMENEZ. Yeah, but I'm talking commercially—for commercially.

Mr. PAXTON. Yes, sir. We don't—we have stepped away from U.S.-flag, U.S.-built, U.S.-crewed presence in international commerce, sir, and there's many reasons I could—you know, flags of convenience, heavy foreign subsidization. There's a litany of things that have deterred commercial investment in those areas because it's not a level playing field.

Mr. GIMENEZ. And because you don't have commercial capacity then it must hurt your ability to produce, you know, our capital ships or our Navy ships, right?

Mr. PAXTON. Well, I think we do have a commercial industrial base that still exists. We have laws that say, hey, if you're going to move product between points in the United States, you're going to go on U.S.-built, U.S.-crewed, U.S.-flagged ships and that has benefited that ecosystem, that industrial base, and we still need that.

I would argue—I would contend we need to think, to your point, why aren't we in international commerce. You know, we list the oil export ban with no commensurate requirement that any of those, you know, national security energy cargoes—LNG [liquefied natural gas] or oil—go on U.S.-built, U.S.-flagged ships in international commerce. I would argue that would have been a good thing to do.

Mr. GIMENEZ. Fair enough.

And, Mr. Norquist, could you—would you agree that the problem that we have with our industrial base—I mean, listen, I mean, I'm new to this committee so I'm just learning.

But it appears to me that what we have is partly an issue of fleet management and I'm talking air fleet and I'm talking about tanks and stuff on the ground. And I'm also talking about the fleet that we don't—you have an issue of inconsistency. If we were consistent in how we purchase stuff and we always bought planes and we always bought—had ships and we always had tanks and we always had all this and you knew that consistently that you could ramp up to meet that demand, is that something you would agree with or——

Mr. NORQUIST. Absolutely. You have both consistency and demand for production. But you mentioned earlier in maintenance, if there's a maintenance—and this is most common in ships—where the ship is supposed to be there on a certain date and it doesn't arrive there is a consequence down the line for the readiness of your fleet and other maintenance.

So it is both in the regular maintenance schedule for equipment and the consistency of what you're purchasing and in the core quantities.

Mr. GIMENEZ. Right. Well, look, I used to be a fire chief and I used to have fire trucks and we'd have—for every online fire truck, every two online fire trucks, we actually had a spare, right, so that we'd always be in service.

But there was always time for that fire truck, fire—you know, ambulance or whatever to be in service. But it appears to me that what we have now is really an inconsistency in budgeting. So you can't ramp up and sometimes you ramp up, we tell you to not ramp down and then that also leads to your inability to retain talent and workers because, you know, nobody wants to go to someone that—well, I may have a job for 2 years versus I have a job, right.

Mr. NORQUIST. That's right.

Mr. GIMENEZ. Okay. So I guess I answered my own question. The way to—I guess the way to combat this is to have consistency in budgeting, consistency in planning, and consistency in procuring the things that we need as a nation.

And then, finally, you know, I do believe that China is—what they're doing is undercutting our industrial capacity not only to increase their industrial capacity but also to hurt us in time of conflict, to decrease our ability to produce those things we need if we in fact get into a conflict.

So any comments on that from the three of you?

Mr. PAXTON. The only comment I'd make, sir, is we just experienced it. At the middle of the pandemic you had about a hundred container ships off of Long Beach and guess what we ended up

doing? Passing the Ocean Shipping Reform Act so we could stop, you know, getting gouged by international shipping conglomerates, which were primarily Chinese, and they would come to our docks, drop off a TEU [twenty-foot equivalent unit container] that they moved for $15,000—usually it moves for $1,500—and wouldn't take any of our agricultural commodities back out. They would go with empty TEUs because it was more lucrative to take that back and keep our commodities here. So that's a problem.

Mr. GIMENEZ. Fair enough. Thank you. I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from California, Mr. Carbajal, for 5 minutes.

Mr. CARBAJAL. Thank you, Mr. Chairman.

Mr. Fanning, Mr. Norquist, and Mr. Paxton, thank you for joining us today.

With the ongoing discussions regarding the debt ceiling and the focus to control government spending, what can be done within the Department of Defense or in collaboration with the Department—the defense industrial base to be more efficient and effective with the current allocation of funds rather than continuing to increase the overall top line of the Department's budget?

Mr. FANNING. I don't want to beat a dead horse but there is a lot of inefficiency in how we budget and how we respond and have learned to respond both on the industry side and the Pentagon side to continuing resolutions. That is an expensive way to operate year after year after year. That is absolutely one thing that could make the Department and industry more efficient.

Mr. NORQUIST. So, I'll sort of highlight two things. One is, one place that you find reforms and opportunities for savings is as you analyze a process inside the Department. Usually this is something where the Deputy Secretary takes the lead or a service secretary. They look at a process, they try and figure out how to automate it or accelerate it, and they generate savings.

That has happened in previous administrations. I've been part of—Kath [Kathleen] Hicks just kicked off her effort with the Defense Management Institute as the current Deputy Secretary. She's doing a great job there as well as on data analytics, and so I think the ability of her to try and help drive internal reforms.

The second is places where for external reasons we hit the brakes and then we hit the accelerator and so you'll see this in acquisition, you'll see this with continuing resolutions, where we tell everyone don't spend in the first quarter because of CR and then the Department has to spend it all before the end.

Those are other places where it's more self-inflicted because we're not even getting the value for the resources we're putting against it. Those are some of the places that I would look to try and drive efficiency and reform in addition to the ones——

Mr. CARBAJAL. Mr. Paxton.

Mr. PAXTON. Yeah. I was just going to say acquisition strategies that work. You know, we see advanced procurement, incremental funding, block buys, where we can do that, and we can see where the efficiencies are, buy that long lead time material. That'll drive affordability and that's been proven in a lot of shipbuilding programs.

Mr. CARBAJAL. Thank you.

Mr. Fanning, in your statement you highlighted multiple areas that Congress and industry should work together on to increase the speed of delivering capabilities, one of which is fixing the budget process.

We have heard the need for a stable funding process and the need for it to be more agile and responsive to new information and changing needs.

What do you mean by more agile—a more agile process? What would that look like? Can we modify the current process or do we need to start from scratch?

Mr. FANNING. Well, there is a commission looking at the PPBE [Planning, Programming, Budgeting, and Execution] process. Dave and I are both on it. So whatever I answer now I have to say as an individual, not as a part of the commission.

But I think we need to find a way to get something to program of record and field it faster. We need to figure out what we have to cut out of the process. We're talking about the size of the defense industrial base and the barriers to entry for new companies.

This is a major barrier to entry. The length of time it takes for a company to develop something, bring it to the Pentagon, and get it as a program of record exceeds investment timelines of the—of the private investments that they're bringing to bear on this.

And so if we're going to be—keep pace or not lose more pace to China and also try to grow the industrial base by creating opportunities for new entrants, we have got to find a way to get the Pentagon process faster.

Mr. CARBAJAL. Thank you.

Mr. Fanning, a repeated phrase in your statement was supply chain issues. The approach to supply chain management for the Department of Defense is typically left to the prime contractors to manage.

When questioning the Department on why programs are delayed, a common issue is subcontractor management and other supply chain issues. I believe the space segment of the defense industrial base is a great example of limited suppliers of components and resources, and while the number of suppliers has rapidly increased over the last few years it's still a budding market and companies are unable to meet the demand.

This problem became very apparent during the pandemic as things were starting to get better. Russia invaded Ukraine, causing another impact to the supply chain. This invasion has limited the supply to gases that are commonly used as propellants for electric thrusters and are also used in the manufacturing of semiconductors.

Are there ways to have more transparency in our subcontractors and their suppliers so we, the DOD, can have greater insights into the critical resources required for all the ongoing development acquisitions and programs in sustainment?

Mr. FANNING. There are, and government and industry have been working together on this for a long time to better understand, add more transparency to the industrial base.

To your point, it's not as big and robust as it might be if investments were different, if we thought about surge capacity different,

if we thought about the capacity of the industrial base as a capability in and of itself.

But it really was battered both on our commercial and our defense side in our industry by COVID and now by inflation.

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from Alabama, Mr. Strong, for 5 minutes.

Mr. STRONG. Thank you, Mr. Chairman. Thank you, members.

In Defense News' listing of top 100 defense contractors worldwide, more than 25 percent have a presence in Alabama's Fifth Congressional District. My district is also home to many smaller but equally innovative firms that do critical work to support our men and women in uniform.

As you know, inflation as high as 9 percent in June of 2022 has had a significant impact on the cost of doing business. The fiscal year 2023 NDAA included clear authority for the Department to adjust contracts to account for inflation.

Mr. Norquist, what are you hearing from your member companies regarding the impact of inflation?

Mr. NORQUIST. So we're hearing a number of things and it affects different companies differently. So certain contracts have adjustment clauses in, less of an impact. Firm fixed price, tremendous disruption.

A small business locked into a multiyear contract that doesn't adjust for inflation that was awarded right before the 9 percent, all of a sudden they're in a hole.

So we're seeing significant challenges in those companies because part of what people forget is it's a multiyear defense budget. So if somebody was awarded a contract prior to the spike in inflation, fixing 2023 helps 2023 but it doesn't solve that. And if you're a program manager, you may have been enacted funds but if you didn't have it under contract you're seeing bids come in that reflect inflation but your budget doesn't. So, it hurts both the government and industry.

Mr. STRONG. Thank you.

North Alabama is a haven for small and mid-sized businesses. Many of the small to medium-sized businesses in my district are moving toward becoming 100 percent employee owned.

While ESOPs [employee stock ownership plans] are successful innovators in these areas they are unequivocally susceptible to the valley of death in which promises nontraditional companies and startups become so successful under small business set-asides that they become acquired by large defense firms or they deliberately curtail their own success to retain the ability to win contracts as a small business.

The FY22 [fiscal year 2022] National Defense Authorization Act included a provision which developed a pilot program to support the use of noncompetitive procedures for follow-on contracts to businesses 100 percent owned by employee stock ownership plans, also known as ESOP.

Do you believe that making these pilot programs permanent or potentially expanding the definition of nonprofit to contain 100 percent ESOP S [corporations] would benefit the defense industrial base?

Mr. NORQUIST. So, I'm familiar with the provision. I don't actually have data on how successful those firms have felt they have been in using it.

But you certainly highlight the big risk, which is when a small crosses that line, if they don't cross it rapidly and have follow-on work, we tend to lose a large number of those small businesses the moment they become medium.

So I do not know how that provision has tracked but I understand the provision. But you do highlight that line is a big challenge for firms.

Mr. STRONG. Thank you. Mr. Chairman, I yield back.

The CHAIRMAN. Thank the gentleman.

The Chair now recognizes the gentleman from California, Mr. Panetta, for 5 minutes.

Mr. PANETTA. Thank you, Mr. Chairman. Gentlemen, good afternoon. Appreciate you being here.

I kind of want to hit on an area dealing with the industrial base and our deterrence strategy for Taiwan, if that's all right, obviously taking into account the lessons that we're learning from Kyiv and especially looking at the ample supply of artillery, especially rockets and missiles.

Obviously, in the battle for Kyiv in the Ukraine war artillery was one of the key things that obviously allowed the Ukrainians to push Russia back. It also demonstrates that we're going to need reliable replenishment capabilities to deter and defend against any amphibious assault towards the island of Taiwan.

Now, that includes several tabletop exercises, for what this is worth. In those exercises the United States depleted critical, long-range precision-guided munitions in less than 1 week in a Taiwan Strait conflict.

So it seems that based on what we're seeing in Ukraine, if the U.S. were to be involved in simultaneous major theater wars, what do you think would be the most urgent hurdles to address and provide the capabilities such as artillery when called upon?

Go ahead, Mr. Norquist, please.

Mr. NORQUIST. So I think, first of all, there's a number of studies on this. CSIS [Center for Strategic and International Studies] did a particularly good one on this very issue, and so when you look at—and different theaters are different, right.

When you look at the Pacific you're looking at extraordinarily long ranges between platforms and so long-range missiles would easily be high consumption rates. Munitions—those types of items in a high-end conflict do get consumed at much higher rates.

So those are the ones that you'd need to focus on as well as how to get them into theater, right. That's the other challenge, is it's a long way to Taiwan and trying to resupply during a conflict is a very complicated process.

Mr. PANETTA. And then I'm going to follow up on this especially on something like that, looking at the island nature being how it'd be subject to blockades as well. You know, how would that affect your analysis?

Mr. NORQUIST. Well, it puts a premium on whether it's there in advance, right. Foreign military sales to Taiwan where they have it prepositioned is dramatically better over trying to move it during

a moment of intense conflict, and making sure they're investing in the right types of defenses.

As somebody has often described, if Taiwan makes itself more like a porcupine, this is a very difficult thing to do an amphibious invasion against. But they've got to be able to put those investments in there.

Mr. PANETTA. As you know well, our NDAA in 2023 established multiyear contracts for some munitions that have been pretty critical for Ukraine and may be useful in our fight over Taiwan if that—if it comes to that.

Do you believe that the multiyear contracts would help bolster stockpiles by creating the demand signal for defense companies to produce goods that could be used in a protracted war while also potentially expediting the production and transfer of certain munitions?

Mr. NORQUIST. Absolutely. The multiyear contract is a very valuable signal because it's more than a signal. It's actually a contract, right. It tells them build this because we have a need.

And then there are things one can do to move beyond that. There's some authorities this committee included that helps accelerate through some of the administrative side. You always have for long lead items the tool of advanced procurement, which we use with airplanes and others on a regular basis. So, there's a number of tools to make it go faster but multiyears are absolutely a valuable step in this direction.

Mr. PANETTA. Mr. Fanning.

Mr. FANNING. I would go back to consistency on this, too. I mean, having seen this—all of us have, years over years over years—munitions are often a bill payer in the end game when you're putting the budget together because of the granularity of being able to say, well, we'll take 20 percent risk on that.

So if you want that industrial base capacity and capability there has to be consistent, determined investment in it over time. And we're talking about surge capability. You're now talking about stockpiling and then prepositioning, too, which is a whole different thing when it comes to Taiwan.

But to have that capability to surge requires a consistent long-term investment. But one thing on block buys or multiyear contracts is it's running up against inflation, we're finding, in two different ways. One, suppliers are not wanting to bid 5 years out because they just don't know what inflation is going to do.

If we get them to, if the big companies get the suppliers to do that and we take the contract to the Pentagon, the contract officials get anxious about a contract that has so much escalation in it over 5 years. And so we still have a lot to figure out on how to deal with inflation, especially over some of these long investments.

Mr. PANETTA. Thank you. Thank you, gentlemen.

Mr. Chairman, I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from Florida, Mr. Waltz, for 5 minutes.

Mr. WALTZ. Thank you, Mr. Chairman. I'll open this up to anyone who wants to answer on the panel.

CSIS recently ran a war game that showed us falling significantly short in the Indo-Pacific theater on a Taiwan Strait scenario.

I know you're not currently still sitting in your former positions. But to your knowledge, do we have enough forward in terms of stockpiles and munitions to sufficiently win or—and we can—we'll set aside the debate of what victory actually looks like, but sufficiently deter and then win should we have a conflict in the Indo-Pacific?

Mr. FANNING. Yeah, I'm not current on what we have prepositioned. But I think what we're seeing in Ukraine makes the answer pretty clear that we don't and a part of that is because we are postured in so many different ways for peace—how we budget, the processes, the capability and capacity that we maintain, and then, of course, what we stockpile.

So I think the answer is pretty clear from what we see——

Mr. WALTZ. How do we sufficiently incentivize industry, right? On the one hand, we don't want to create a bunch of things we never use. On the other hand, we—you know, we have to balance modernization with investing in the legacy systems.

Do you have any recommendations, and I'll take them for the record, on how this committee can be helpful there with industry?

Mr. FANNING. There are a number of ways you can send signals—strategies, budgets. Industry looks at all of those and looks for some consistency into the future so that the FYDP certainly helps with that.

But, ultimately, to really guarantee it because, again, industry will want to get out front of a contract but it's the contract that really cements it into place for the long term.

[The information referred to can be found in the Appendix on page 128.]

Mr. NORQUIST. I would only add the Department needs to understand in its wargaming and modeling the same type of results that CSIS saw in their study and then change the requirements, right.

You do that and then you start putting it in your budget and your plans, and now you are receiving from the Department the demand signal that the Department is showing of we intend to buy these in quantities over time.

[The information referred to can be found in the Appendix on page 128.]

Mr. WALTZ. Was CSIS too dire? Were they too—did they take too many negative assumptions into their war game, I mean, from the——

Mr. NORQUIST. I would not assume so. Now, again, I don't know the Department's analysis and if I did I'd probably be stuck behind a classification challenge.

But when you look at high-end fights we traditionally find they vastly consume more munitions that one would think they would. Just the intensity of the battle are very different than counterterrorism type of operations in the sheer volume.

And we cannot assume the sort of, well, we'll do like World War II and once it starts we'll ramp everything up and we'll catch up over 3 years. We have to be able to position and prepare more carefully than that, given the nature of our modern industry.

Mr. WALTZ. I'd be interested in your thoughts for the record on how to actually help the Pentagon do that.

[The information referred to can be found in the Appendix beginning on page 129.]

Mr. WALTZ. In that same vein, do we have the stockpiles of parts for many of these high-end systems, for example, Joint Strike Fighter, to conduct combat repairs? We have those PLL [prescribed load list] lines forward? Any type of cache environment—cache environment?

Mr. NORQUIST. I don't know the status of the forward line on the repairs for those so I wouldn't be able to weigh in at this point.

Mr. WALTZ. Okay, thank you.

And, finally, from a shipbuilding perspective—I mean, just to set the table, China has 50 shipyards that could fit a *Nimitz*-class carrier. We, arguably, have two to four that are incredibly old.

The largest shipyard in China could fit all of ours and combined. I think their roughly 50,000 commercial vessels compared to our 5, many of which they can nationalize and militarize.

I don't believe there was any money in the bipartisan infrastructure deal, the once in a lifetime deal, that the President was pounding the lectern about just last night, for shipbuilding, to my knowledge.

Mr. Paxton, do you have any comment there?

Mr. PAXTON. Certainly, there was not a comment on that. There is the SIOP [Shipyard Infrastructure Optimization Program] that's investing in our——

Mr. WALTZ. Is it sufficient? $20 billion over 20 years when we have an intel community that's blinking red over the next 5 [years]?

Mr. PAXTON. I certainly think our public shipyards need help. I don't represent them. They're not part of our group.

To your previous question, though, this committee did authorize recapitalization of the National Defense Reserve Fleet, which to your point about Taiwan we do need logistics. We do need auxiliary vessels to sustain the fight and we really don't have that right now in our——

Mr. WALTZ. Could we use Jones Act fleet hardening, militarizing, perhaps upgrading a portion of that to then almost like a Civil Reserve Air Fleet? You think that's a viable concept? I'm out of time but if you could answer for the record that would be great.

Mr. PAXTON. Well, yeah.

[The information referred to can be found in the Appendix on page 130.]

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from Minnesota, Mr. Vasquez, for 5 minutes.

Mr. VASQUEZ. Thank you, Mr. Chairman. I think the letters in my State got transposed and it's New Mexico, but not a problem. Just a little bit different. But thank you, Mr. Chairman.

Today's hearing examining the defense industrial base is incredibly important to New Mexico and to my district. New Mexico, as you know, is at the forefront of national defense including research, development, and testing of some of the most critical technologies and programs that keep the United States safe.

The defense industrial base is also an incredibly important economic engine and potential for economic development in the rural

areas of my district. A study by the University of New Mexico showed that the State's military bases alone in New Mexico generate $3 billion in wages and supported more than 52,000 jobs.

But there is opportunity to do more, not just for our national security but for the benefit of our local economy. Now, Sandia and Los Alamos National Laboratories research and develop some of the most advanced technology in the world, technology that is often transferred to the private sector to be commercialized where it supports thousands of jobs and generates millions of dollars in revenue, not just for my State but for this country.

At White Sands Missile Range we are undertaking essential work to modernize our military including testing hypersonic and long-range systems. If we can invent it in New Mexico and test it in New Mexico we can build it in New Mexico. That's my theory.

Co-locating elements for our defense industrial base in a State like New Mexico that is so rich in the research and testing assets can have the benefits that we need in this State and across our economy from those good-paying jobs in manufacturing to stronger educational pathways and training programs to help fill our workforce gaps.

Mr. Fanning, in your opinion, how can we leverage the resources of a State like New Mexico to grow the defense industrial base where we have opportunity, we have willing participants to enter the workforce, and the key elements such as the national labs and testing ranges?

Mr. FANNING. Well, I think we see all over the country where there are pockets where investment has grown up in aerospace and defense, for obvious reasons.

I think there are probably two key aspects to this. One is workforce. Companies will go where the workforce is and so State and local investment in education, in apprenticeship programs, in STEM education, makes a big difference because that's really the critical element for our industry right now.

And then the other is just what other economic investments that the local or State governments are willing to make. But I think making sure that you have that educational STEM pipeline is one of the most critical things to make sure that you have the capacity to keep growing in a regional area.

Mr. VASQUEZ. And, Mr. Fanning, how can the private industry and part of the—private part of the industrial base help support investments in education to help spur this workforce in places like New Mexico? What is the role, do you think, there for private industry?

Mr. FANNING. There's a lot that private industry does to try and make up that gap. We have a large aerospace company in Kansas that recruits off of farms because they at least are thinking they're finding people that know how to work with heavy machinery. They're in the schools. They're doing their own apprenticeship programs. They're leaning far into this because of the problems that workforce has.

When they find a willing partner at the State and local level it just makes it that much more interesting and you can see places around the country—Alabama, Colorado—where you have these

pockets where all the different stakeholders come together and they've had some success at growing organic capability.

Mr. VASQUEZ. Thank you, Mr. Fanning.

And I just want to put a plug in for New Mexico State University. We used to have an aerospace engineering degree. Financially couldn't sustain it and now this was before we had the first purpose-built spaceport—commercial spaceport in the country in Spaceport America north of Truth or Consequences, New Mexico.

But that potential pool of talent that we have there with the resources that we have in the Federal Government that also helps support a host of engineering jobs is a place that I think industry should continue to look to help create this pipeline of STEM jobs.

Mr. NORQUIST. But you mentioned the interesting combination of a test range, universities. You talked about things like hypersonics. There's a series of emerging technologies in these areas that are going to have unusual sort of challenges to solve.

So, for example, in our association we have set up an Emerging Technology Institute that's working with universities to be able to do those types of things and the emphasis on do you have enough test ranges so when these new technologies like hypersonics come online you can take advantage.

I really appreciate your leadership in this area. But this is something we from an association side recognize as a key need, going forward, is to bring those players together.

Mr. VASQUEZ. Thank you, Mr. Norquist.

And for my last question what role does immigration have to play in helping to fill some of the gaps that we currently have in the STEM workforce at places like Sandia and Los Alamos in New Mexico?

Mr. NORQUIST. When you get legal immigration with STEM skill cells, I mean, this is the cheat code the United States has over the rest of the world is our ability to attract people from everywhere else and bringing them into the country is a huge help. It builds the workforce pool, and even if they don't go into the government because it's classified, the fact they're in the pool helps produce it and benefit everybody.

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from Texas, Mr. Fallon.

Mr. FALLON. Thank you, Mr. Chairman. I appreciate it.

Mr. Norquist, as the representative of Red River Army Depot, the Center of Excellence for tactical wheeled vehicles, I'm particularly sensitive to the needs of the defense industrial base and the Department's organic industrial base.

While the commercial industrial base builds the systems we all know that we use, the depots—arsenal, shipyards—are responsible for maintaining these systems and ensuring that they're ready for any future conflict.

If it doesn't do—it doesn't do a lot of good to have a shiny new Corvette in the driveway if you can't maintain it because it's going to be a flash in the pan. You'll have fun for few weeks there. Then you're going to be having a little trouble.

Over the last several decades we have seen time and again when the life of a particular system is extended well beyond its original

intent it's always a benefit to the taxpayer and to our national security.

This can be necessary based on the types of conflicts that we're in, moving forward, because of the delays in new programs. The Army is currently undertaking a 15-year OIB [organic industrial base] modernization implementation plan for our depots to improve capabilities and leverage with new technology while saving the taxpayers millions.

Sir, based on your experiences in both the private sector and in the DOD, what do you see is the values of depots and what capabilities do they provide the DIB to meet and maintain our military's readiness requirements?

Mr. NORQUIST. So you've highlighted—there's a couple of key ones. The first is on the regular equipment, having it up and ready so that it's available for the warfighter when they need it, right, that's the key thing.

If you don't have maintenance and you've got—and we have seen the damage when the Russians tried to go into Ukraine with equipment that clearly was not well maintained. The devastation of poorly maintained equipment on a war plan is catastrophic.

So the first and foremost is have the current capability ready. But as you point out, they produce a second option, which is when—if it's to your advantage to extend the life of a platform because its capability and design makes it possible, you're looking to those depots to make that possible, to be able to redesign or reengineer it, to swap out the parts that don't have that life extension with ones that do, and they give you a whole new set of choices which are valuable to the government and their decision makers.

So both the readiness of the current force and the options of how to equip the future force are two of the core functions that the depots provide.

Mr. FALLON. And, sir, if I could do two follow-ups. What do depots provide the private—that the private sector can't? And, in your opinion, how could we better utilize these depots, which are really critical, to alleviate some of the strain on the DIB that we have been talking about all hearing?

Mr. NORQUIST. Well, I think each of the—the public and the private sector each play a role to be able to address certain types of challenges and it depends on the nature of the requirement which one they use, and there are many firms that work with private depots in order to help them perform their mission so that the combination of government and industry is apparent wherever you go.

And so I think the question is when the government decides what its requirement is, which are the issues it's trying to solve and which is the best setup in order to achieve those.

Mr. FALLON. Thank you, and I think my colleague was mentioning about what impact does immigration have in STEM. I liked your answer and I think I want to emphasize that you said legal migration is a benefit to the country.

I don't know any members on my side of the aisle that don't agree with that statement that legal migration is a benefit to the country, a net benefit, moving forward.

So thank you very much, Mr. Norquist and the witnesses. Mr. Chairman, I yield back.

The CHAIRMAN. The Chair now recognizes the gentlelady from Virginia, Ms. Kiggans, for 5 minutes.

Ms. KIGGANS. Thank you, Mr. Chair.

This question is for Mr. Paxton. I represent Virginia's Second Congressional District so it's home to the Atlantic Fleet and to a lot of our shipbuilders and ship repair industry, and just meeting with the ship repair industry, we have BAE, NASSCO, Colonna, MHI, a lot of the big—the big guys. And in talking to them about retention of their workforce—and you all mentioned just workforce challenges—and they said the biggest problem for them is just the lack of predictability for acquisition or—that acquisition or repair cycle because it's inconsistent funding for them.

So they are frequently having to spend millions of their own dollars in keeping their staff when really this should be funding that the government provides or at least let's get them a more predictable schedule.

So what can we do or what can this committee specifically do to improve that process for them?

Mr. PAXTON. Yeah. I think it starts with having that maintenance and modernization plan where we know what's in that FYDP, what's going to happen over the next 5 years so the industry can plan for it because certainly industries in your district have invested heavily in their facilities and workforce.

But they've also—maintenance and modernization goes through a lot of ups and downs, you know, issuing WARN [Worker Adjustment and Retraining Notification] Acts, and then they're letting folks go. And one little fact about the shipyard industry is when we try to get somebody in our trades, they go through their apprenticeship programs, they do all that great stuff, and they get certified and they're a welder or they're a machinist or electrician, that's enormous. And I think Mr. Fanning said it earlier that once you've had an apprenticeship program you have kind of a sense of belonging.

When we have to let these workforce go because we're—flows don't come into the home port like they were predicted, that tradesman was going to be a project manager, you know. But it takes about 5 to 8 years for that to happen. Or a supervisor.

And a lot of the guys in our shipyards are generational. They've had a mother or a father that's worked there and they want a career, and we have careers. You can start in the trades and you can move into management and you can move up.

So when we have instability in the work forecasts going into the home ports, the real disruption is with that workforce and then with the supply chains. And so I'm not sure I'm answering your question precisely but our workforce is incredibly important down there. The work that the Virginia Ship Repair Association does is amazing and they're a strong supporter of what we do.

Ms. KIGGANS. Yes. And we're happy to have them.

And along those same lines with workforce challenges—and this isn't really a question, more of a comment—but just incentivizing our veteran population. You know, those guys understand the work ethic. They understand the work culture. They lived on those ships. They want to take care of those ships.

So I know we have done a lot of work on the State level, especially in Virginia, about trying to transition those guys from Active Duty into how can they serve in repair and shipbuilding. But I definitely think we need to put more of a focus on that group.

But my next question is about the smaller shipbuilding companies. So we've got the big boys but we also have a whole lot of smaller ship repair companies and these guys are—they play a pivotal role in just providing maintenance and that surge capability that we talked about that's so important.

So the complaints from those guys is that they are being neglected and the bigger boys are getting a lot of the business—the majority of the business.

So I want to look out for the small guys, too, because I need them when we need them the most. So what can we do to ensure that the small guys are taken care of as well?

Mr. PAXTON. Sure. I think there is requirements that have been issued where we do have small business set-asides where work is pushed that way. I know a lot of our small ship—smaller shipyards do a ton of ven—vendor work with our primes. So there's great relationships there and they all work together.

I think also there's unique circumstances where the smaller shipyards have fixed firm contracts so when inflation and all these things have come in and material costs have changed they're getting—they have to absorb those costs a little bit different than the prime.

So we got to look at that as well and see how we can help those shipyards weather a very different environment than we were living prepandemic.

Ms. KIGGANS. Thank you. Thank you. I yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from North Carolina, Mr. Davis, for 5 minutes.

Mr. DAVIS. Thank you so much, Mr. Chair, and thank you to each and every one of you.

I have a quick question for Mr. Norquist in particular. I represent Eastern North Carolina's First Congressional District, which we have enormous challenges. But my question is how can we encourage in particular in economically distressed areas small and mid-sized businesses in particular to compete to provide us with the best and strongest national defense possible?

Mr. NORQUIST. So there's a couple of ways. I mean, certainly, there are certain government programs designed to promote them.

But I think one needs to go beyond that and so one of the things, for example, our association does is to try and have events where people can come together. So organizations who have a company in your district who don't necessarily have those connections can come to events, meet people from the other companies, explain to them what their product does, what their company does, in order to build those.

We have—the majority of our membership are small businesses and it's the ability to meet with the government buyers and to meet with other vendors. That is why they attend and bring them together.

So I think those are the sort of things we do precisely for the benefit of those types of organizations and companies.

Mr. DAVIS. Okay. Thank you so much for that.

Mr. Fanning, hearing back home about the logistical challenges faced specifically by the Fleet Readiness Center, East Cherry Point, North Carolina, they face enormous difficulties recruiting a stable workforce and acquiring resources to guarantee timely repairs for our military [aircraft].

From where you sit, how can Congress, how can I, representing this area, work in partnership with DOD to maintain a stable base of support for facilities like this, like the Fleet Readiness Center in my region?

Mr. FANNING. Well, I think, first of all, consistent budgeting. You know, companies or organizations that aren't working don't get paid for it, which is the first quarter of a fiscal year typically, and then they're asked to surge to make up in three quarters of a year or half of a year what they weren't doing in the previous part of the year.

That's more expensive because you're paying overtime and labor. So, anything that can be consistent in the budgeting process that allows any institution, government or industry, to plan and have consistency for its workforce is sort of a fundamental aspect, I think—a critical part of being able to maintain a steady workforce and provide some assurances to that workforce.

Mr. DAVIS. Okay. Thank you so much. Yield back.

The CHAIRMAN. The Chair now recognizes the gentleman from Guam, Mr. Moylan, for 5 minutes.

Mr. MOYLAN. Thank you, Mr. Chairman.

Mr. Paxton, with Guam and other outlying regions of the United States being geographically removed from much of America's industry core, what capabilities exist or would you recommend to service our military hardware with this huge buildup, especially in the Indo-Pacific area, because of our threat, and recommendations specifically for our Navy vessels in Guam and other outlying areas of the United States?

Mr. PAXTON. Well, certainly, we care a great deal about the maintenance and modernization of our vessels in the Western Pacific, so be that Hawaii and Guam, we want to see work done there and be stable.

Beyond that—I'm not trying to avoid the question but I'm just trying to think, more so our assets in Guam and I just don't have the ton of visibility on that. I don't know if I can defer to my other two colleagues.

Mr. NORQUIST. Well, I think, first of all, you have to recognize that, given the pivot to the Pacific and given the challenge, Guam moves from being on the periphery to being in the dead center of the conversation, right.

When we talk about distances of supplies to the Pacific you have a distance of some kind of just—the distances from Guam are very different. And so being able to store things, being able to maintain things, all of those functions, when they can be safely done forward tremendously change the calculus.

So I think there's a different answer over the—with the two new strategies we have seen about how central a role Guam is to the mission and to its ability to sustain the mission.

So I think this is a great conversation to have with the Department about what can we do here—so that if you think about it the Department has to move it all the way across during a conflict. They're putting people at risk that entire journey. If it's already there then you say bring it home, fix it, bring it back.

So the question is what are the assets that are best supported there. Those I don't know from a military mission point of view, but, clearly, its location dramatically changes its value in this situation.

Mr. FANNING. I'd say the same thing. We talked about the volume of munitions you use is always more than you plan. The duration of an engagement is more than you plan as well, and being able to sustain equipment—ships in this case—closer to the fight means that they're available more and for longer periods of time.

So I agree with David that Guam becomes much more interesting as we—geographically as we think about planning and pivoting our budgeting and our programming and what have you towards something that's in that region.

Mr. MOYLAN. Excellent. Thank you very much. Thank you, Mr. Chairman. I yield my time.

The CHAIRMAN. Yeah. That is a really critical area for us to focus some attention. Guam is going to be in the center of everything as we move into the INDOPACOM [U.S. Indo-Pacific Command] and we need to be thinking about these things now and making sure we're prepared before conflict rather than regretting that we didn't.

You know, when we went into Afghanistan 20 years ago, and Iraq, we really realized how unprepared we were as a nation and I remember my first—that's when I first got here—and our first 2 years we were resolved to never let that happen again.

Well, you know, we need to be thinking about and I would like for you all to be thinking about how we can bring our partners into that process to make sure Guam is fully prepared for whatever may come in the not too distant future.

With that, I'd like to recognize the gentleman from Florida, Mr. Mills, for 5 minutes.

Mr. MILLS. Thank you, Mr. Chairman. Thank you, gentlemen, for being here today to testify. Thank you, Mr. Fanning, for your service.

As a Bronze Star recipient, military combat veteran, and also a former owner of three different defense businesses, I own one of three companies in the United States who had a unit capacity monthly of 150,00 to 200,000 A5 warhead pressed M430A1s, 433s. I can tell you, and I hope that you would agree—and please, if you don't, let me know—that energetics in our supply chain and consistency has been a real stronghold against the U.S. business stream. You know, I'm a big fighter for the idea of not just getting our military industrial base stronger but also to ensuring consistency.

We joke in the industry that the only consistency we have is inconsistency and I think that remains true. But I think that also there's other factors. The DDTC [Directorate of Defense Trade Controls] sometimes has been politicized in many ways, which prevent our DSP–5s and DSP–83 approvals; BATF–E's [Bureau of Alcohol, Tobacco, Firearms and Explosives'] overregulation, sometimes with

our Form 2, Form 9s being held for a prolonged period of time; raw material costs due to inflation; and the fact that we don't control enough of our actual at-home production. And that's something I really want to work with you guys in the industry as well as for within our committee, is to make sure that we bring more here at home when it comes to our ability to build, supply, and conduct our own LATs [lot acceptance tests], LAPs [load, assemble, and pack].

But I would also note that workforce shortages is, while it's a big factor, we also acknowledge the fact that in many cases industries like ours doesn't exactly have the most desirable locations to live in whether it's Texarkana, which some might find less appealing, Perry, Florida, or many of the others. And so I do understand that importance when we're trying to get STEM qualified individuals.

But I've also noticed, and it wasn't noted in any of your testimonies, the issues within the banking industry's appetites. I have seen multiple times where small, medium businesses in the defense industry can't actually get the necessary advance payment or performance bonds because there are a lack of banks with an appetite to support the defense industries.

And I wanted to just ask really quickly do you find, in addition to the overregulation, that the banking industry's appetite to support the defense industry is also hindering us?

Mr. FANNING. I'll start. We were seeing that in Europe before the invasion of Ukraine and then watching very closely here in the United States a number of movements. But that was one of them. Defense—the defense industry in Europe was really struggling increasingly to find financing for that exact reason.

We weren't seeing it here as much and I would say the thing—the tide has changed dramatically in Europe in the last year and so I think that will help over here with the industry to include small businesses. But we weren't seeing it leap over the Atlantic to the degree that it was happening in Europe, and we were watching it pretty closely.

Mr. MILLS. And if I just may really quickly, where I'm seeing the biggest thing, I think, with the banking appetite isn't necessarily in the larger businesses. I find it in the smaller and medium-sized businesses that haven't gotten that established revenue where the bank will overlook the risk simply based on the billions of dollars that are coming in in defense. And so I think that's somewhat going on but perhaps at a lower level that your industry or your association isn't necessarily representing.

Mr. FANNING. I think that speaks to the inconsistency we have been talking about——

Mr. MILLS. Correct.

Mr. FANNING [continuing]. Particularly for small businesses in the defense industrial base, and now you have inflation on top of that because as we have discussed the supply chain is—it's not walled off for the industrial base. It's shared, and in inflationary times there's all sorts of incentives to move to a commercial side.

We have companies that are not getting deliveries from their suppliers who are willing to pay the penalty on the defense side because due to inflation they can get more even with the penalty by delivering either all or some of what they're due to the defense companies to a commercial client.

Mr. MILLS. And I just want to get through a couple of these questions. You know, one of the things I look at that is really important as a congressional Representative is to be a good steward of taxpayers' money.

Now, I'm all for ensuring readiness and making sure that we're more than equipped to handle the upcoming threats that we face. But I also understand that under the Federal acquisition regulations when we look at free and fair and open competition we have things that have troubled me for years, which is things like BAFO [best and final offer].

When we talk about the best and final offer we'll look at three or four companies, and perhaps one company because they have a better supply chain reliancy, because they do a lot more in-house, things like this, they fall outside of this 20 percent competitive range and therefore they're automatically disqualified even though they are a cheaper and a same quality as the others that are there.

Do you think there needs to be a bit of a change to the procurement regulations as well and how we do that?

Mr. NORQUIST. So I think in some cases there may be a change. In some cases it's the application, right. In many cases, there's the flexibility to properly account for the various strengths that different bidders can bring to the table and does the acquisition community make a point of valuing those.

And we pointed to earlier the resilience factor is going to be of greater importance and the acquisition community needs to look for that in its bidders to be able to say, I recognize this bidder brings greater resilience to this project than the others and so that would matter.

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from Georgia, Mr. McCormick, for 5 minutes.

Mr. MCCORMICK. Good afternoon, gentlemen. I'm sure you're excited to have my questions since I'm at the tail end of this discussion. Thank you. This has been enlightening.

In regards to what the Chair just recently brought up and in quoting this book, which I'm sure you guys are familiar with, it's basically the 2023 Center for Strategic and International Studies wargame "The First Battle of the Next War."

They identify, and I quote, "military planning appears to assume that U.S. forces will be able to deploy onto sovereign territory of other countries during a crisis. In particular, the Army and Marine Corps seem to assume that the MLRs [Marine Littoral Regiments] and the MDTFs [Multi-Domain Task Forces] will be prepositioned in the Philippines, Taiwan, or on four Japanese islands before the conflict begins. However, such permissions for forward deployments en masse do not seem likely due to immense destruction the conflict would cause."

They aptly noted that there is, therefore, the potential for a fundamental disconnect between U.S. war plans and political realities. I would make the case that we're doing the same thing as we plan and we prepare our forces, including my beloved Marine Corps, as we plan for prepositioning people on islands and chains, we don't really would have access to if a war actually began.

And are we preparing for the right battles? In other words, we have to have—we have never predicted a war yet correctly. We always end up in these conflicts we didn't anticipate, and if we put all of our development in our defense into baskets which we think it's a massive war but we end up fighting all these other peripheral wars, are we, indeed, in your opinion, preparing for the variety of wars we could face in the future or are we just really focusing too much on one theater?

Mr. FANNING. It's hard, obviously, to gather a fulsome set of lessons from unclassified wargames, although this was a pretty comprehensive set of games.

But I think if we look at what's happened the last year in Ukraine we should all be questioning all of our assumptions about planning but particularly if we're looking at a Taiwan scenario.

Mr. NORQUIST. I think when you look at a conflict if you assume a solution or a problem you have clearly misunderstood and not done enough history, right.

What you look for is what are options and do I have the capacity to take advantage of them if they present themselves and what are the risks. There are certain things you can't assume you will have and then if I don't, well, then I can't fight because you may discover that's exactly what you can't have.

So one of the challenges in going through this and wargaming is what are the things that I should assume I might not have and do I have an ability to work around that, and what are the things that if the window presented themselves I could take advantage of.

But as you point out, if you make too narrow a set of assumptions and everything breaks your way, you're not prepared for when they don't and typically they don't.

Mr. PAXTON. The only thing I'd add is from the standpoint of logistics and sea lift we need to get on to the business of, you know, service life extensions, buying some foreign aspects of our Ready Reserve fleet, and then building purpose-built ships that are going to be able to sustain and provide the logistics that we need.

Mr. MCCORMICK. Fantastic. Well, I'm looking forward to learning tons more on how we can streamline the process for both what we're facing now and into the future.

With that, I yield, sir.

The CHAIRMAN. I thank the gentleman from Georgia.

I thank our witnesses. You've been very helpful. I appreciate your preparation and your time today.

And with that, we are adjourned.

[Whereupon, at 1:31 p.m., the committee was adjourned.]

A P P E N D I X

FEBRUARY 8, 2023

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

FEBRUARY 8, 2023

The Honorable Eric Fanning
President and Chief Executive Officer
Aerospace Industries Association

"The State of the Defense Industrial Base"
House Committee on Armed Services
Wednesday, February 8, 2023

Introduction

Chairman Rogers, Ranking Member Smith, and members of the committee, thank you for inviting me to appear today. My name is Eric Fanning, and I serve as the President and CEO of the Aerospace Industries Association (AIA). For over 100 years, AIA has advocated for America's aerospace and defense (A&D) companies and the more than two million men and women who are the backbone of our industry. AIA serves as a bipartisan convener, bringing people together to find consensus on important topics, like effective federal investments and adaptation of policies empowering our defense industrial base (DIB) and country for the 21st century and beyond.

AIA applauds this committee for its ongoing leadership in listening to A&D industry leaders and its willingness to act on new and innovative approaches that will support and strengthen our industry and our nation's security.

The DIB is the Department of Defense's (DoD) most important partner in equipping and protecting our warfighters and defending our country. To fulfill this vital role, the companies that make up the DIB rely on clear demand signals from Congress, sufficient federal investment, a regulatory environment that allows us to innovate and move at the speed of relevance, and a healthy and resilient supply chain. Recently, a confluence of challenges – the pandemic; record inflation eroding not only DoD's purchasing power but how every company is doing business; workforce challenges, including rising labor costs that have grown at a much higher rate for our industry and the persistent struggle to recruit and retain qualified workers; supply chain disruptions; and a major war in Europe, to name a few – has put significant pressure on our industry.

To best address these challenges, it is crucial to understand our industry. The defense industrial base – and its ability to respond to these challenges – is shaped by a single customer: the federal government. That is an important distinction from the commercial marketplace, and one that has an outsized impact on its products, people, and performance. Federal investment helps ensure the overall health of the industry. That means that the number of programs prescribed by the Pentagon has a direct correlation to the contours of the industry. Competition within the industry ecosystem is driven by identifying something for which to compete – companies react accordingly. A good example is UAVs; there are hundreds of programs and hence a multitude of competitors.

The industrial base is not monolithic. It is a diverse ecosystem, with companies of all sizes, each with their own role to play. While small companies can be innovation incubators by virtue of their size and ability to speed decisions, prime contractors bring scalability, capability, and cash flow, as well as a

large talent pool with extensive experience. Primes can also afford to maintain a workforce in ready state to meet evolving needs.

Another way these companies drive innovation, recruit, and retain the best talent, and maintain operations, is by leveraging outside investment – which requires a business model that demonstrates some profitability. No business can survive without profit. The industrial base leverages it to drive innovation and investment in our national defense. Profit margins for most aerospace and defense companies are significantly lower than other industries, like technology, operating at profit margins multiple times of the A&D industry. These margins put our industry on a similar level to staple industries like food and health care.

Our current industrial base is maximized to meet peacetime needs. That means excess capacity for surging is not always built into the system. We are optimized for efficiency, both from an infrastructure and workforce standpoint. With the possibility of conflict on the horizon, we need to consider how we resource and support the capacity and resilience of the defense industrial base. Both Congress and the Department have a role to play.

While these challenges have come to a head within the last several years, the contours of the DIB and its ability to respond to these challenges are rooted in policy and funding decisions made years ago. The levels of appropriated federal funding, the annual reliance on short-term funding measures, and the constant specter of government shutdowns have created deep-seated and disruptive instability and uncertainty. Furthermore, well-meaning but burdensome statutes and government policies drive up the cost and complexities of doing business with the federal government.

As a result, some companies within the DIB are choosing to no longer do business with the DoD, reducing the competition needed for the DIB to thrive and for DoD to consider the broadest range of technological solutions. Those companies committed to remaining in the DIB, particularly small- and medium-sized businesses, are often hamstrung by regulations and requirements, inhibiting innovation and modernization. These challenges have real consequences for our armed forces. In the absence of new entrants and small businesses, our military can no longer access the full range of innovative solutions to meet the growing, geographically diverse, and evolving mission set positioned against a backdrop of competition with China, a war in Ukraine, and the possibility of conflict in Taiwan, as well as a range of other threats.

There is good news: Over the last several years, Congress – on a bipartisan, bicameral basis – has boosted investment in national defense, which is critical to ensuring our defense industrial base can support and equip our warfighters. We are encouraged by our continuous engagement with the DoD and steps taken to spur innovation, address acquisition challenges, support small businesses, and work with the DIB.

But more can and must be done to meet this moment. Congress should review outdated and burdensome policies and regulations and give agencies authorities that will speed up the acquisition process to encourage commercial companies and other new entrants to participate in our national security network. Equally important is ensuring that DOD leadership is in place to fulfill roles in execution. Pentagon nominees playing an important role in serving as a conduit between the military, the Administration, Congress, and industry. We urge members of this committee to encourage your Senate counterparts to prioritize consideration of Pentagon nominees.

Who We Are

Today, AIA represents more than 300 A&D companies ranging from family-run businesses to multinational corporations, operating up and down the supply chain. Our membership includes aircraft and engine manufacturers and companies that design and build cutting-edge military and dual-use technology second to none. Our members have a worldwide reputation of global technological leadership, and the A&D industry represents a dynamic workforce composed of many types of workers.

Our industry is not only integral to national security, but is also a significant driver of the American economy. Despite the inflationary pressure and ongoing pandemic recovery, the industry's workforce generated $892 billion in sales in 2021, a 2.1 percent increase from the prior year despite the ongoing pandemic at that time.

Even when facing challenges, the 2021 A&D workforce stood at more than 2.1 million strong. The industry supports jobs representing approximately 1.4 percent of the nation's total employment base. More than 57 percent of employment comes from the shared A&D supply chain and an extensive network of suppliers composed of thousands of small- and medium-sized businesses located every state in the United States.

While the defense industrial base continues to innovate at an unprecedented rate, it must also continue to produce older technologies that remain relevant, like Javelins, which have only a single supplier for some of its key parts. We must ensure that these companies are healthy enough to do both, which is clearly a financial challenge. Integration of merchant suppliers and increased investment are options to overcome this challenge and keep our nation secure.

The Challenges We Face

Our military faces a growing, geographically diverse, and evolving mission set. The DIB, which is an essential element of troop readiness, is confronted with these tests as well. Effectively addressing these threats will require focused changes in federal policy and investment, which continues to be unpredictable and inconsistent. Nearly a year on, the Ukraine conflict is testing our country's ability to maintain a high state of readiness while also surging to respond to conventional conflict. We also find ourselves in a renewed debate about arbitrarily cutting federal investment in defense just as we are digging out of the Budget Control Act's arbitrary budget caps, supply chain disruptions and related material shortages, and a global pandemic, as well as our two most serious challenges: workforce issues that plague the broader economy and significant economic pressure from record inflation. A recent survey of AIA members showed that inflation is the top pain point for our companies participating in the defense industrial base, and that wage competition has been the top obstacle to retention. At the same time, we see China, which DoD has identified as its "pacing threat," undertaking an unprecedented campaign of military modernization, underscored by significant investment in its armed forces and national security infrastructure.

The sense of urgency for increased production extends beyond Ukraine to our allies and partners, as well as to addressing China, and must be matched with an equal sense of urgency when it comes to building our budget. Returning to regular order and providing on-time, predictable, and sufficient funding for the departments and agencies that work with the DIB is the first and most important step. At all costs, we must avoid arbitrarily cutting the budget or defaulting to the use of stopgap funding legislation, which relies on two-year-old funding levels to meet the challenges of today, wastes money on programs no longer needed, and prevents new programs from getting off the ground. Over the last 25 years, Congress

has relied on short-term funding bills to prevent government shutdowns more than 120 times. Aside from the very real harm this inflicts on the wellbeing and morale of our troops, Continuing resolutions (CRs) muddy the demand signals Congress sends the DIB, slow or even halt the development of cutting-edge technologies, and force businesses into stop-and-start cycles that are hugely inefficient.

Furthering our challenge is the substantial decline in the number of companies in the DIB over the past decade. Companies seeking to enter the DIB must contend with a multitude of laws and regulations that are cost- and time-prohibitive, disrupt established supply chains, and require implementation of new systems, processes, and procedures. Congress and the DoD have correctly recognized the need to expand the DIB and reduce the barriers to entry. For example, Congress, in the FY22 National Defense Authorization Act (NDAA), directed the DoD to assess policies, regulations, and oversight processes that create a barrier to the commercial sector's willingness to do business with the federal government.

Multiple senior DoD officials have also acknowledged the shift in the DIB. In one example, Deputy Secretary of Defense Kathleen Hicks stated, "Yet, over the past decade, small businesses in the defense industrial base shrunk over 40 percent. The data shows that if we continue along the same trend, we could lose an additional 15,000 suppliers over the next 10 years." This recognition is not translating into action, as Congress and the DoD continue to seek new laws and regulations every year before properly assessing current policies and the cumulative impact on the health of the DIB.

Deputy Secretary Hicks has also acknowledged that doing business with the Department is "not always easy" due to the many and varied security requirements and operating policies. Layers of existing reporting requirements, coupled with proposed additions to an already complex regulatory system, are a serious operational challenge for many of our businesses. One example is the Federal Acquisition Rule to Minimize the Risk of Climate Change. Industry shares the goal of addressing climate change and has made a number of commitments to reduce environmental impacts. However, the draft rule would allow an international body to determine whether a defense contractor can continue to do business with the federal government, putting significant strain on the supply chain including small and medium sized businesses that are already stressed due to macro-economic factors, and is asking industry to report on standards that do not exist and are subject to change. This uncertainty will add complexity and cost to the process, impacting the workforce and operations.

Cybersecurity compliance is critically important, but additional Cybersecurity Maturity Model Certification (CMMC) compliance requirements, while rooted in the important necessity of safeguarding sensitive information, create an additional layer of costs. According to our recent survey, more than three-fourths of AIA member companies are seriously or somewhat concerned about CMMC 2.0 implementation this year. By way of illustration, a certified woman-owned small business and AIA member has seen its IT expenses increase by 50 percent since 2018, and its IT department has doubled in size during that time span. Because its business relies heavily on commercial aerospace as well, this company is still recovering from the pandemic. To remain compliant with CMMC requirements, the company sought an estimate for implementation, and the quote received was "huge": $150,000 for the actual assessment; $500 per hour for the lead assessor; and $400 per hour for the Certified CMMC Assessor, plus any additional staff needed for an estimated four-week assessment. Combined with the additional certification costs already in place to do business with the DoD and the need to recertify every three years, the estimated costs are not achievable for many small businesses, and they will risk losing small suppliers that opt out and leave the DIB.

While Congress is rightly renewing its focus on fragilities in our supply chain and the erosion of America's innovation in critical technologies compared to China, it is important to recognize the critical

role of the tax code in incentivizing the private sector, and particularly the A&D industry, to do what it always does best: find and develop the next generation of technologies to keep the warfighter and everyday Americans safe and maintain our global economic competitiveness.

Our competition is not backing away from this challenge; in fact, they are investing more into innovation than ever. Between 2000 and 2019, China's share of global R&D rose nearly 488 percent, from 4.9 percent to 23.9 percent. At the same time, China extended its super deduction for R&D expenses for manufacturing companies to an extra 100 percent of eligible R&D expenses in addition to actual expenses incurred. That means for every $100 spent on innovation, Chinese companies can deduct $200, 10 times more than American companies in a similar situation. Congress must restore competitive R&D tax amortization rules to strengthen our global R&D posture relative to China and other nations.

From the global perspective, the U.S. defense and commercial industrial base is and will continue to be tightly connected to the defense industrial bases of our ally and partner countries. It is impossible to separate the U.S. industrial complex from our shared, global industrial bases. The U.S. DIB shares a supply chain with democratic nations across the world. Items produced in the United States, the UK, Australia, the EU, and major allied partners are therefore integrated together and naturally form a DIB that is democratically aligned. U.S. investment in an integrated industrial base that includes democratically aligned nations should be encouraged – not discouraged by byzantine, bureaucratic, Cold War-era systems – as a mechanism to achieve broader U.S. economic and national security interests.

Therefore, U.S. policymakers must implement clear systems and flexible policies that both incentivize and enhance cooperation while building collective capacity with trusted partners. These systems and policies should enable resiliency in our overall supply chains, draw partners and allies closer together, and establish long-term industrial and economic relationships that allow like-minded nations to deter and respond to shared global threats. Just as NATO has come together to further integrate its supply chain in defense of Ukraine, the United States must also pursue an integrated industrial policy to address and prepare for potential conflicts in other parts of the world.

What Can This Committee Do?

In the FY23 NDAA, Congress provided a measured, temporary ability for government funds to be used to modify the terms and conditions of a contract or option to provide an economic price adjustment. In fact, Congress acknowledged that:

> *"...higher than anticipated economic inflation continues to challenge the budgeting and execution processes of the Department of Defense and defense industrial base (DIB). The ability of the Department and DIB to adapt to economic conditions is a critical factor in maintaining the health of the DIB, especially when economic conditions are unusually volatile and in regard to firm fixed price contracts where industry bears the predominant financial risk.*

This new authority is limited in scope and time. We are hearing from our members that small suppliers are refusing to sign long-term agreements due to the unpredictability of ongoing high levels of inflation. When combined with the slow bureaucratic process, short-term supply agreements will bring the contracting process to a halt and result in higher costs to the DoD. Congress should take additional steps to provide greater authority to the DoD to respond to the effects of recent and current inflation levels to protect the health of the DIB.

Building and strengthening the resiliency of the global supply chain is a strategic imperative for the A&D industry and our government partners. This is essential to the health of the civil aviation sector, the DIB, and overall defense and deterrence. We are a long-lead supply chain industry. Our companies order materials, parts, and components months in advance and are generally able to manage short- and medium-term disruptions. They also work on mitigation strategies in the event of long-term disruptions. Expanding the DIB with new commercial entities is vital to improving this resiliency, while also spurring Innovation and competition.

But perturbations can take a while to become apparent. Russia's invasion of Ukraine has heightened supply chain challenges even as it places increased pressures on industry to bolster production. That's why we must set the right policy conditions when it comes to investment, and a framework to support the long-term health of the DIB and the effectiveness of our security partnerships. To manage growing supply chain hurdles and inflation uncertainty, we need on-time, stable, sufficient funds, and long-term policy that is both clear and flexible to enable surge capacity and to target material shortages and other supply chain gaps.

Open access to a global supply chain supports our industry's efforts to deliver the best quality products at the best price to our U.S. and global customers. U.S. companies acquire parts and components from the global market, including from U.S. sources, and then integrate those items in the final product for export. This includes both U.S. suppliers that support the design, production, and maintenance of U.S. systems sold to global customers, as well as foreign systems that incorporate U.S. products.

The time it takes between the release of a final solicitation to the award of a contract continues to rise. Prime contracts with estimated sales of more than $100 million averaged over 300 days. For commercial companies that are used to working quickly, the delays in awarding contracts and executing agreements is a strong disincentive to work for the DoD. Such delays also increase costs to contracts and delay capabilities from getting to warfighters. To defer, and if necessary, defeat our adversaries, we must be able to get capability into the warfighter's hands as quickly as possible. Emerging technology from commercial or non-traditional defense contractors can't – or won't – wait on convoluted, outdated contracting processes.

Mergers and acquisitions (M&A) should be viewed as a tool to strengthen the industrial base and provide stability to the workforce and business operations. Too often, these opportunities are reflexively dismissed rather than reviewed on the individual merits. M&A is a tool for companies to grow and to stabilize the workforce, unleash innovation, bolster performance, and strengthen capability and capacity. Some companies need to access the tools and resources of a larger company to continue development, while some investors view M&A as a faster path than becoming a program of record. Given the potential opportunity to bolster the health and resiliency of the DIB through these strategies, there should not be a predisposition to oppose mergers and acquisitions outright.

To meet the growing demands on both delivery and innovation within the DIB, there is a systemic need to address today's workforce needs by meeting the demand for skilled and diverse talent pipeline. In 2018, the Deloitte and the Manufacturing Institute whitepaper "Skills Gap and Future of Work Study" projected the manufacturing skills gap in the U.S. to reach 2.1 million unfilled jobs by 2030[1]. Coupled with a 2019 U.S. Bureau of Labor Statistics report projecting science, technology, engineering, and mathematics (STEM) occupations to grow over two times faster than the total for all occupations in the next decade. Investing in STEM education, reskilling current industry employees for new technologies, and enhancing our country's training efforts, including apprenticeship programs, on-the-job training, and

certification and credentialing programs, are vital to expanding talent pools and ensuring a highly skilled, dynamic future workforce.

Congress, working with industry, should take on this challenge to increase the speed of delivering capabilities by:

- **Providing More Flexibility:** The Federal Acquisition Regulation (FAR) allows for some flexibility and Congress has authorized additional flexibility to the DoD, but oversight and aversion to taking risks result in many/most procurements not pursuing flexibility already available.

- **Adjusting Decision-Making Authority:** Driving down decision-making authorities to the lowest level will save time and empower program managers to lead, take appropriate risk, and deliver effective capabilities to meet warfighter requirements. This will also require a culture change to incentivize and reward the workforce for innovation-driven decision-making.

- **Accelerating Contractual Innovation:** We must identify and fully understand risk. A government contract must share risk fairly with a company, and provide enough stability and profit to encourage innovation, investment in workforce and productive capacity, and the ability to surge in a crisis.

- **Reforming Labor Categories:** Federal contracts often contain highly specific educational and experiential requirements for contractors. In today's tightening labor market, readily available, highly skilled talent is increasingly scarce; and many companies are shifting to skills-first hiring practices. Significant investments are being made to train and develop a ready workforce, but narrow contractual requirements on labor categories limit the industry's ability to recruit and retain top-tier talent. Strict degree requirements, oftentimes far exceeding the scope of necessary skills to perform on a contract, hinder contractor placement and delay work until these employees that meet these narrow requirements can be hired.

- **Increased Utilization of Government-Industry Exchange Programs:** More than 15 programs currently exist for federal employees and industry or academics to exchange roles, including DoD's Public-Private Talent Exchange (PPTE) and the Office of Director of National Intelligence's Intelligence Community PPTE. Intended to increase exposure and improve collaboration between the public and private sectors, government-industry exchange programs can be a highly effective tool to strengthen the federal workforce and equip it with tools to keep pace with the agile nature of private industry, including evolving technologies, group management practices, and professional development opportunities. Despite these benefits, these programs have historically been underutilized due to a lack of guidance for effective implementation and statutory limitations that disincentivize individual participation, such as compensation structures. Congress and implementing agencies should consider common-sense changes to these programs to maximize the benefits of cross-sector collaboration and better incentivize participation by industry, especially from small and medium sized companies.

- **Limiting Over-Classification:** Reducing over-classification to improve the acquisition process, capability delivery times, and operations information sharing, including removing duplicative classification of the same programs and architectures amongst different DoD and intelligence community (IC) organizations. Congress, the DoD, and IC should leverage the current focus on reducing over-classification to clearly communicate legislative priorities; create better

collaboration with allies and industry; and ease the barriers to partnership between the government, allies, and industry.

- **Fixing the Budgeting Process:** Realigning the acquisition and budget process via a more agile alternative to traditional Planning, Programming, Budgeting, and Execution (PPBE) will better reflect a marketplace that moves more quickly than the Program Objective Memorandum (POM) cycle and will create flexibility to proactively leverage emerging technologies that weren't known or required when the budget was approved two years prior.

- **Reforming Foreign Military Sales:** In the case of supporting partners and allies via Foreign Military Sales (FMS), which is only executed via the DoD acquisition system, a standard contract for an FMS program takes on average 18 months to award, with complex FMS programs taking longer. Given the strategic importance of FMS, the DoD and the entire government must evaluate the overall process to deliver the best capability to partners on an accelerated timeline. The speed of the contracting process and delivery schedule should be informed by the global threat environment, U.S. national security and foreign policy objectives, and the foreign partner's defense and budgetary needs – not opaque processes. Further, FMS contracts lead to protracted negotiations at the expense of delivering much-needed capability in a timely manner. Several sophisticated foreign partners are willing to accept more risk acquiring capability than is typically permitted by program offices under current FMS operating procedures.

- **Reducing the Cost of Compliance:** Additional compliance requirements, such as CMMC, will further stress an already vulnerable supply chain, and more companies will exit the DIB due to the real costs associated. Congress and the DoD must do more to lower the costs of compliance and offer assistance to small businesses that are critical to the DIB.

- **Eliminating Unnecessary and Outdated Policies:** Over the years, Congress, with the best of intentions, has added layers of bureaucracy to safeguard sensitive information, protect our troops, and maintain our competitive edge. At times, additional oversight and regulations have been levied without regard to efforts – either from prior legislation or from within the DoD – to address the same challenges, or without understanding the intended and unintended consequences of prior reforms. The DoD's actions on intellectual property rights, pricing, and overall increase in contracting regulations are stifling the innovation and directly impacting the health of the DIB. Congress working with industry should examine existing policies; take stock in what is working and what is not working; and remove duplicative, overly onerous, and/or outdated policies that hinder innovation, impede participation in the DIB and mire the Department in red tape. Clearing this underbrush will allow both the DoD and the DIB to focus on what really matters and will streamline how the DIB does business with its primary customer.

- **Ensuring Sufficient Resourcing:** America's national security is an enduring responsibility that requires sufficient, stable, and predictable funding. The most important factor in the success of our military, and in turn, the DIB is the provision of sufficient resources to meet the challenges outlined in the National Defense and National Security Strategies.

  This committee can send a clear signal early in the annual budgeting process by authorizing a strong defense topline to meet the defense strategy, and working with the appropriations committees to ensure that funding bills are enacted into law ahead of the September 30 fiscal

year deadline. Every step should be taken to avoid the damage inflicted by stopgap funding bills, especially a long-term or full-year continuing resolution.

In addition, Congress should consider how crucial cash flow is to companies of all sizes. We continue to hear from our members, especially small businesses, that progress payments play an outsized role in keeping their operations and workforce funded to meet the customer's needs.

Conclusion

The A&D companies within the DIB share Congress' enduring commitment to national security and the defense of the American way of life. The government has a willing partner in the DIB to address these challenges, accelerate innovation and acquisition, and set the United States on a stronger course for a more secure future.

In closing and on behalf of AIA and our members, I thank you for your time and consideration of these matters. As always, AIA is available to address any questions or concerns the Committee has now and in the future.

Eric Fanning
President & Chief Executive Officer, Aerospace Industries Association

The Hon. Eric Fanning is President and Chief Executive Officer of the Aerospace Industries Association [AIA], an advocacy organization for the aerospace and defense industry with nearly 350 companies in its membership – ranging from multinational prime contractors to family-owned businesses. As AIA's leader, Fanning develops the association's strategic priorities and works with member CEOs to advocate for policies and responsible budgets "that keep our country strong, bolster our capacity to innovate and spur our economic growth."

Fanning joined AIA after serving as the 22nd Secretary of the Army where he provided leadership and oversight of our nation's largest military service. He previously served as Chief of Staff to the Secretary of Defense, Acting Secretary of the Air Force and Under Secretary of the Air Force, and Deputy Under Secretary of the Navy/Deputy Chief Management Officer. He is the first person to have held senior appointments in all three military departments and the Office of the Secretary of Defense.

During his more than 25 years of distinguished government service, Fanning worked on the staff of the House Armed Services Committee, was Senior Vice President of Strategic Development for Business Executives for National Security, was Deputy Director of the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, and was associate director of political affairs at the White House.

Fanning holds a bachelor's degree in history from Dartmouth College. His awards include the Department of Defense's Medal for Distinguished Public Service (twice awarded), the Department of the Army's Decoration for Distinguished Civilian Service, the Department of the Navy's Distinguished Public Service Award (twice awarded) and the Department of the Air Force's Distinguished Public Service Award and Decoration for Exceptional Civilian Service.

DISCLOSURE FORM FOR WITNESSES
COMMITTEE ON ARMED SERVICES
U.S. HOUSE OF REPRESENTATIVES

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(5), of the Rules of the House of Representatives for the 118th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants), and contracts or grants (including subcontracts and subgrants), or payments originating with a foreign government, received during the past 36 months either by the witness or by an entity represented by the witness and related to the subject matter of the hearing. Rule 11, clause 2(g)(5) also requires nongovernmental witnesses to disclose whether they are a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing. As a matter of committee policy, the House Committee on Armed Services further requires nongovernmental witnesses to disclose the amount and source of any contracts or grants (including subcontracts and subgrants), or payments originating with any organization or entity, whether public or private, that has a material interest in the subject matter of the hearing, received during the past 36 months either by the witness or by an entity represented by the witness. Please note that a copy of these statements, with appropriate redactions to protect the witness's personal privacy (including home address and phone number), will be made publicly available in electronic form 24 hours before the witness appears to the extent practicable, but not later than one day after the witness's appearance before the committee. Witnesses may list additional grants, contracts, or payments on additional sheets, if necessary. Please complete this form electronically.

Hearing Date: 2/8/2023

Hearing Subject:

State of the Defense Industrial Base

Witness name: Hon. Eric Fanning

Position/Title: President & CEO

Capacity in which appearing: (check one)

○ Individual ● Representative

If appearing in a representative capacity, name of the organization or entity represented:

Aerospace Industries Association

Federal Contract or Grant Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) or grants (including subgrants) with the federal government, received during the past 36 months and related to the subject matter of the hearing, please provide the following information:

2023

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A	N/A	N/A	N/A

2022

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A	N/A	N/A	N/A

2021

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A	N/A	N/A	N/A

2020

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A	N/A	N/A	N/A

Foreign Government Contract, Grant, or Payment Information: If you or the entity you represent before the Committee on Armed Services has contracts or grants (including subcontracts or subgrants), or payments originating from a foreign government, received during the past 36 months and related to the subject matter of the hearing, please provide the following information:

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Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
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2021

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A	N/A	N/A	N/A

2020

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Fiduciary Relationships: If you are a fiduciary of any organization or entity that has an interest in the subject matter of the hearing, please provide the following information:

Organization or entity	Brief description of the fiduciary relationship
N/A	N/A

Organization or Entity Contract, Grant or Payment Information: If you or the entity you represent before the Committee on Armed Services has contracts or grants (including subcontracts or subgrants) or payments originating from an organization or entity, whether public or private, that has a material interest in the subject matter of the hearing, received during the past 36 months, please provide the following information:

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2022

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A	N/A	N/A	N/A

2021

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A	N/A	N/A	N/A

2020

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A	N/A	N/A	N/A

STATEMENT OF

THE HONORABLE DAVID L. NORQUIST

PRESIDENT AND CHIEF EXECUTIVE OFFICER

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION (NDIA)

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

ON

THE STATE OF THE DEFENSE INDUSTRIAL BASE

8 FEBRUARY 2023

NOT PUBLIC UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE

Chairman Rogers, Ranking Member Smith, and distinguished Members of the Committee, thank you for the opportunity to speak with you today on the state of the defense industrial base and its essential role in national security. I will limit myself to brief opening remarks, and with the Chair's permission, submit for the record NDIA's *Vital Signs 2023* report.

For over 100 years, the National Defense Industrial Association (NDIA) has worked to improve collaboration between industry and government so our Nation's security can fully harness the benefits from our innovative industrial base. As a trade association, NDIA represents over 1,800 defense companies of all sizes and sectors, and the majority of our members are small businesses.

The defense industrial base is critical to our national security. Its people develop, produce, maintain, and repair the platforms, equipment, supplies and advanced technologies our warfighters need. They are the welders, engineers, programmers, scientists, analysts and technicians who respond to our Nation's call to maintain our military and to build the future force.

Today, there is a mismatch between what our national strategies aim to achieve and how our defense industrial base is postured. Both the 2018 and 2022 National Defense Strategies highlight the return of great power competition and the 2022 National Security Strategy states, "the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next." However, key industrial readiness indicators for great power competition are going in the wrong direction.

For example, we should expect the number of workers in the defense industrial base to be increasing. In 1985, the U.S. had three million workers in the defense industry. In 2021, there were 1.1 million workers in the sector and that number is remaining flat.

We should expect the number of companies in the defense industrial base to be increasing, but analysis shows that over the last five years a net 17,045 companies have left the defense industrial base. In particular, the Department of Defense recently estimated the number of small businesses participating in the defense industrial base has declined 40% over the last decade.

From 1985 to 2021, funding for national defense decreased from 5.8% to 3.2% of U.S. GDP. The Congressional Budget Office projects a further decline to 2.7% by 2032. In addition, in 13 of the last 14 years we have had long continuing resolutions that specifically prevent new starts or increased production rates. These trends are not consistent with creating the industrial base required for great power competition.

The current state of the defense industrial base is not an accident. It developed in response to government policy and funding. To produce resilience in the defense industrial base, the government must value it in its budget and contracting processes. This would include encouraging vendors to use multiple suppliers, having more parts in stock and building surge capacity. This can be through contracts as well as supported by Congress via multiyear authority and advanced procurement.

We should also make it easier for firms to do business with the government, particularly small businesses and those in non-traditional industries who cannot afford the many regulatory

barriers to entry, long contracting timelines, and disruptive uncertainty with annual appropriations.

The return of great power competition places greater demands on America's defense industrial base. A brittle industrial base is a strategic vulnerability. A resilient defense industrial base is a powerful deterrent. I appreciate the Committee's wisdom in prioritizing this critical issue. Thank you for the opportunity to testify today, and I am happy to answer any questions you may have.

David L. Norquist
President & Chief Executive Officer, National Defense Industrial Association

The Hon. David L. Norquist is President and Chief Executive Officer of the National Defense Industrial Association [NDIA]. He joined NDIA on May 1, 2022, bringing with him more than 30 years of public and private sector experience in national security and federal financial management.

Mr. Norquist previously served as the 34th Deputy Secretary of Defense from 2019 to 2021 and was responsible for the day-to-day operations of the Department of Defense (DoD), including managing the Pentagon's budget and personnel. He led reforms in DoD business processes and realigned investments toward the challenges of multi-domain warfare. At the request of the Biden Administration, Mr. Norquist served as Acting Secretary of Defense and continued as Deputy Secretary until the Senate confirmed Secretary Lloyd Austin and Deputy Secretary Kathleen Hicks.

From 2017 until 2019 as the Under Secretary of Defense (Comptroller) and Chief Financial Officer, he supported the National Defense Strategy (NDS) through the development and execution of the DoD's annual budget of more than $680 billion. Mr. Norquist strengthened accountability to the taxpayer by implementing DoD's first department-wide financial statement audit.

Mr. Norquist began his career in 1989 as a Presidential Management Fellow supporting Army intelligence as a program and budget analyst with assignments on the Army staff, a major command, a defense agency, and at an overseas field site.

Following his time with the Army, Mr. Norquist served for six years with the House Appropriations Subcommittee on Defense as a professional staff member, where he focused on Air Force aircraft, munitions, ballistic missile defense and information assurance.

From 2002 to 2006, he served as a deputy undersecretary of defense in the Office of the Comptroller. In 2006, President George W. Bush selected him as the first Senate-confirmed Chief Financial Officer of the Department of Homeland Security.

Between his stints in government service, Mr. Norquist was a partner with Kearney and Company, a certified public accounting firm.

Mr. Norquist was born in Concord, MA. He is a 1989 graduate of the University of Michigan, where he received a BA in Political Science and a Master's in Public Policy. He also holds an MA in National Security Studies from Georgetown University.

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Hearing Date: 8 February 2023

Hearing Subject:

The Health of the Defense Industrial Base

Witness name: Hon. David L. Norquist

Position/Title: President and CEO of the National Defense Industrial Association

Capacity in which appearing: (check one)

○ Individual ● Representative

If appearing in a representative capacity, name of the organization or entity represented:

National Defense Industrial Association (NDIA)

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N/A			

2020

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A			

Fiduciary Relationships: If you are a fiduciary of any organization or entity that has an interest in the subject matter of the hearing, please provide the following information:

Organization or entity	Brief description of the fiduciary relationship
NDIA	Serves as CEO and President of NDIA
	NDIA is a trade association with members representing all sizes and sectors of the defense industry.

Organization or Entity Contract, Grant or Payment Information: If you or the entity you represent before the Committee on Armed Services has contracts or grants (including subcontracts or subgrants) or payments originating from an organization or entity, whether public or private, that has a material interest in the subject matter of the hearing, received during the past 36 months, please provide the following information:

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NDIA Membership and sponsorship at conferences	More than 1,800 NDIA members pay dues and sponsor events.	No payment was made directly relating to this hearing.	NDIA is a defense trade association receiving membership dues and sponsorship.

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BEFORE THE

UNITED STATES HOUSE OF REPRESENTATIVES
HOUSE COMMITTEE ON ARMED SERVICES

State of the Defense Industrial Base

February 8, 2023

Testimony of

Matthew O. Paxton
President
Shipbuilders Council of America
20 F St. NW, Suite 500
Washington, DC 20001

On behalf of the Shipbuilders Council of America (SCA), I would like to thank Chairman Rogers, Ranking Member Smith and members of the House Armed Services Committee for the opportunity to provide our perspective on the health of the defense industrial base – particularly the shipyard industrial base.

I am Matthew Paxton, President of the Shipbuilders Council of America, the largest national trade association dedicated to representing the U.S. shipyard industry. The SCA has been in existence in some form since 1920 and currently represents more than 150 companies that own and operate shipyard facilities across the United States and partner companies that comprise the vital supply chain that makes up the nation's shipyard industrial base.

The U.S. shipyard industrial base is a diverse and critical manufacturing sector of our nation's economy. A 2021 study by the U.S. Maritime Administration[1] found that the industry supports more than 390,000 direct and indirect jobs across the United States and contributes $42.2 billion annually to GDP. Shipyards are engaged in building, maintaining, modernizing and repairing vessels of all sizes for the U.S. Navy, U.S. Coast Guard, U.S. Army, NOAA, the Maritime Administration, local and state government customers and the 40,000 commercial vessels that operate in domestic commerce. Additionally, there is a vast supplier base that provides goods and services that support all facets of the domestic shipyard industrial base.

Over the past several years, there have been several negative impacts on our industry. Despite the COVID-19 Pandemic, supply chain disruptions, historically high inflation impacts and, workforce challenges caused in part by the lack of stable and predictable acquisition plans from our government customers, our industry has weathered these challenges and will continue to support our nation.

Recent statements by senior Navy leaders have stated shortfalls in the industrial base capacity and capability to meet the legally-mandated policy of a 355-ship Navy. As an industry, we believe there is capacity to provide increased output to the Navy, Coast Guard and other customers. We believe the issue is an inefficient use of our current capacity created by an inconsistent demand signal. The single most critical factor in the capacity of the shipbuilding and repair industrial base today is people. From the perspective of those in the industry, the creation of additional shipyards will not create additional capacity but rather dilute the manufacturing workforce among all shipyards and drive up unit costs of labor, unit costs of ships and unit costs of repair and modernization. The most effective mechanism to ensure that the industrial base is stable and resilient is through a consistent upward and adequately funded demand signal and a recognition that the cost of doing business has significantly changed because of the factors identified above.

Let me state up front that the shipyard industrial base has made and will continue to make considerable investments in its workforce to hire and train the next generation of skilled craftsmen and women. In addition, the private shipyard industry has made substantial investments in new capital infrastructure, including dry docks, to meet the demands of the Navy's new construction and ship repair plans. Despite industry's proven willingness to invest in their people and facilities to meet the Navy's stated demand, the shipyard industry has been challenged with volatile fleet mix numbers and projected ship repair workloads including truncated or significantly delayed construction programs and canceled maintenance periods leaving the industry with unfilled facilities, underutilized strategic assets and an under-employed

[1] https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-06/Economic%20Contributions%20of%20U.S.%20Shipbuilding%20and%20Repairing%20Industry.pdf

workforce. Private shipyards require a predictable workload and a volume of work to support the recapitalization of equipment, keep rates low and train a sustainable workforce.

The U.S. new construction and repair shipyards that provide American jobs with direct economic impact in every Congressional district in the Nation will meet any demand signal that is clear, consistent and predictable. An unpredictable budget and acquisition environment with repeated shifts in fleet size and mix and funding delays make CAPEX and facility investment decisions more difficult for shipyards. Moreover, once the people are lost as production lines are stopped and started, they are more and more difficult to replace. Regardless, the private shipyard industry and the associated critical supply chain remain committed partners in building, maintaining and modernizing the most capable and advanced Navy for the Nation and our dedicated servicemen and women.

COVID-19

Though the COVID-19 pandemic greatly impacted the shipyard industry, I am proud to report that as a designated "Critical Infrastructure Industry," your American shipyards never shut down and shipyard employees cut steel to build, repair, maintain and modernize our ships throughout the pandemic. Pre-pandemic, the U.S. shipyard industry prided itself on our culture of safety, and that served our industry particularly well in adjusting rapidly to meet the unique problems and demands of the pandemic. Our industry was able to adjust quickly to keep the workforce safe and healthy. Shipyards immediately implemented plans and procedures to stagger shift changes, spread out the workforce, clean and disinfect work spaces, routinely test employees and quickly quarantine individuals who tested positive and perform contract tracing and notification.

The COVID-19 pandemic impacted the U.S. shipyard industry by introducing additional costs and delays related to production, workforce and our critical supply chains and there is uncertainty as to how those delays and costs will ultimately be addressed by the government customers. While certain programs have been authorized to give DoD the flexibility to adjust contracts to help industry absorb costs incurred because of the pandemic, those programs have either not been funded or those authorities have not been exercised to provide industry relief.

Inflation Impacts & Supply Chain Challenges

Unprecedented and systemic supply chain and other economic disruptions, including record levels of inflation, are contributing to extremely challenging circumstances for the shipyard industrial base.

Many contracts in the shipyard industrial base were negotiated with expectations of only 2 to 3 percent inflation and with properly functioning global and domestic supply chains. Inflation is still elevated at 6.5% and with lingering issues in the supply chain, companies are now faced with possible schedule delays, less output, and cost increases. Those who have entered into firm-fixed-price contracts (FFPs) are even more susceptible to the changing dynamics of today's economic environment. Unfortunately, in most cases, the services have expected the private shipyard industry to absorb the delta in costs.

Analysis from the Center for Strategic and International Studies (CSIS)[2] shows that small and medium contractors tend to engage in more firm-fixed-price (FFP) contracting, which is a common contracting method for less risky acquisitions. However, FFP contracting has occurred across all levels of industry

[2] https://www.csis.org/analysis/inflating-risk-contracting-face-inflation

and each contract must be reviewed to understand and mitigate the impacts. Because FFP contracts are more vulnerable to inflation-driven price increases, firms with fewer resources will bear the brunt of inflation as they work to deliver on government contracts.

A 2018 report assessing the U.S. manufacturing and defense industrial base and supply chain found that since 2000, the defense industrial base has lost more than 20,500 manufacturing firms across all industries and that the shipbuilding and repair[3] manufacturing component was one of the hardest hit in that time period. It would be reasonable to conclude that the pandemic and follow-on challenges to these market conditions have caused additional companies to exit the industrial base.

The impact that these market pressures have on the shipyard industrial base are significant and it is concerning that we often hear senior leaders in the Navy only refer to challenges in the "seven shipyards[4]" when in fact, the Navy depends on a much more dispersed industrial base to meet its goals in new construction, modernization and repair.

According to recent industry studies[5] from the National Defense Industrial Association (NDIA), "FY2021 and FY2022 outlays are experiencing $50 billion in lost purchasing power… [and] if left unfunded, this loss will appear as reduced quantities and maintenance backlogs or cost overruns and schedule delays." Overall, this reduced purchasing power is reflected in the cost of materials, labor and other capital investments required by the industrial base.

Workforce

U.S. shipyards and shipyard suppliers pride themselves on implementing state-of-the-art training and apprenticeship programs to develop skilled craftsmen and women that can cut, weld, bend, build, and repair first of kind vessels and technologically advanced ships. However, the shipyard industry, like so many other manufacturing sectors, faces an aging and retiring workforce.

Our industry has continued to look at best practices for attracting the next-generation workforce by highlighting the opportunities to learn high-skilled labor and the corresponding wages that can be earned without a four-year degree. Our shipyards work with regional partners to establish the curriculum needed for apprenticeship and vocational education at community colleges and local technical schools.

Additionally, SCA recently became an official facilitator of the Northeast Talent Pipeline Project, a program funded by NAVSEA, PEO Attack Submarines and PEO Strategic Submarines to support employers as they recapitalize their workforce through recruiting, hiring, training and retaining a skilled workforce. We also work closely with the Navy's Shipbuilding Industrial Base Task Force to share information with industry on federal grants and opportunities that are available to support workforce development programs in shipyards and private companies.

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[3] Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States, Interagency Task Force in Fulfillment of E.O. 13806, September 2018

[4] https://news.usni.org/2023/01/10/cno-gilday-to-shipbuilders-pick-up-the-pace

[5] https://www.ndia.org/about/press/press-releases/2022/9/13/ndia-inflation-paper

We appreciate this committee's efforts to address workforce challenges through language in the FY23 NDAA and encourage the Congress to look at opportunities to incentivize investment in vocational training and development of these critical, skilled workers. This not only supports the requirements needed for our military customers but also supports additional needs and opportunities in new commercial markets such as offshore renewable energy.

Providing Market Stability

To grow and develop the next generation of shipyard workers, U.S. shipyards require market stability across sectors so that companies can make the required investment in their people and facilities to meet demand.

In the FY2018 NDAA, the Congress made it the policy of the United States to maintain a Navy Force Structure of 355-ships- a result of the 2016 Force Structure Assessment (FSA). Since then, the Navy has provided a moving target as to how that policy was to be achieved[6]:

- said the 355-level goal included only manned ships,
- said that the goal may include a mix of unmanned and manned ships,
- delayed the updated force structure goal in 2019,
- indicated that future force-level goals after 2019 would introduce generational changes in fleet architecture, including to basic ships the Navy uses to support its force,
- released a different force structure goal in December 2020,
- released a long-range maintenance document in June 2021 that was different from the projections six-months prior,
- released a 30-year shipbuilding plan with three different options for the future force structure,
- released the latest CNO Navigation Plan in July 2022 which stated different goals in certain ship programs compared to the 30-year shipbuilding plan released in April 2022.

These are examples of mixed messages provided to industry over the last five years. SCA does not advocate for one program or ship class over another so I am not here to advocate for one proposed plan compared to another. What I can tell you is that this inconsistency from our largest government customer hurts the ability of our industry to make critical investments in our workforce and facilities. While as an industry we pride ourselves on our ability to meet the needs of our customers and shift to incorporate new technologies and processes into our work, the industry is not a light switch that can be flipped on and off without our people and facilities needing to make major adjustments.

Recently, that this lack of predictability and stability from the customer coincided with a time when volatile market conditions, including a global pandemic, and generational inflation, supply chain and workforce challenges, have limited the resources on which our industry can call to respond to these customer demands.

SCA would encourage the Congress to continue to support stable, realistic and predictable budgets for the U.S. Navy and Coast Guard and we appreciate the work this committee has done to add authorities and dollars to critical accounts to see these goals realized. While we recognize it is hard to accurately forecast needs 30 years into the future, there must at least be stability and fidelity in the FYDP and the

[6] https://crsreports.congress.gov/product/pdf/RL/RL32665

10-year horizon otherwise there will be significant disruption to the industrial base. Additionally, we encourage this committee and the Congress to continue to hold the services to account through effective oversight.

The CNO's 2022 Navigation Plan would see the fleet grow to more than 500 manned and unmanned vessels, up from today's 296 ships. According to the CRS, to achieve such numbers, the Navy will require a "3-5% sustained budget growth above actual inflation." Simultaneously, the United States Coast Guard is undertaking efforts to recapitalize essential national security assets such as the Polar Security Cutter (PSC), Offshore Patrol Cutters (OPC), and the Waterways Commerce Cutters (WCC) that ensure the safe navigation of inland marine transportation. To meet the demands of these recapitalization plans would require significant and sustained investment by the Congress, the Navy, the Coast Guard and industry in order to work together to meet the requirements of the future fleet.

The needed increase in shipbuilding and ship repair budgets to meet the needs of the Navy and Coast Guard will require U.S. shipyards to expand their workforces and improve their infrastructure in order to meet the demand for vessels – a requirement our Nation's shipyards are eager to meet. But first, to build and maintain these ships in as timely and affordable a manner as possible, stable and robust funding is necessary to sustain those industrial capabilities which support Navy and Coast Guard shipbuilding and repair.

To meet these goals, Congress can authorize the use of acquisition strategies that enhance cost reduction rather than requiring the entire procurement cost of a ship to be funded in one fiscal year. Authorizing alternative funding approaches such as advanced procurement, incremental funding and block buy contracting could increase stability in Navy and Coast Guard shipbuilding plans and increase the number of ships that could be built for the same amount of procurement funding.

Through the use of advanced procurement in shipbuilding, Congress can define the full cost of a ship in an initial appropriations act but defer some of the appropriation to future years. For the shipbuilding industry and the supplier base, this creates an early financial commitment that enhances job security and encourages capital investment. Additionally, advance procurement can reduce the total construction cost of a ship through improved sequencing or year-to-year balancing of shipyard construction work and the purchase of batch items that can be manufactured in an efficient and economic manner.

Authorization of incremental funding, where cost is divided into two or more annual portions, allows for expensive items, such as large Navy ships, to be procured in a given year while avoiding or mitigating budget "spikes" and major fluctuations in year-to-year budget totals. While this authorization also requires appropriations support, industry believes that incremental funding would also allow construction to start on a larger number of ships in a given year so as to achieve better production economies. And an added benefit often not considered is a reduction in the amount of unobligated balances associated with DoD procurement programs.

Industry appreciates the block buys authorized in the FY23 NDAA. Block buy contracting permits the Department of Defense to use a single contract for more than one year's worth of procurement of a given kind of ship without having to exercise contract options for each year after the first year. Purchasing ships through block buy contracting enables shipyards to leverage "hot" production lines — those assembling current ships —and streamline the acquisition process for these vessels. The

government should consider taking advantage of "hot" production lines and should review optimizing build "centers" or the pace at which ships are bought, and subsequently built. Additionally, we recommend the Navy provide additional methods to support continual, risk-managed innovation to ensure future relevance, including areas to manage life-cycle costs.

The industry has seen successful acquisition programs leverage the benefits of lead follow yard designs that have benefitted from block buys, advanced procurement and multi-year appropriations.

In addition to funding the construction of Navy and Coast Guard vessels, there must be similar commitments to fund the "tail", or the maintenance, of the current and new ships entering the fleet to ensure that they remain in commissioned service through their expected life cycle. Much like shipbuilding, ship repair and modernization would benefit from the use of acquisition strategies that promote private sector investment in people and infrastructure, increase the volume of work in existing shipyards and promote the speed of execution to meet the unique challenges of the maintenance and modernization environments. Current strategies appear to reduce the very complex nature of repair and modernization to a commodity rather than appropriately implementing a strategy that optimizes the capacity of industry's existing workforce and facilities.

It is not possible to get to the legally-mandated fleet size if the services do not adequately budget to maintain the ships that we do have and that are being commissioned over the next few years for the duration of their service lives. SCA applauds the work this committee did to prevent the decommissioning of 24 additional ships in the last President's budget request. The work the Congress has done to provide more insight into schedule repair and maintenance availabilities, and the recent initiatives such as the extended OPN Pilot program and relaxing upward obligation beyond one year will help provide that insight and stability to industry.

As part of funding the "tail" of maintenance, we'd recommend that the Navy details its approach to managing life-cycle cost and maintainability costs on new ships; specifically, how the designs support more efficient and effective maintainability. Additionally, it is imperative that condition-based maintenance include equipment layout and larger maintenance envelopes.

Supporting the Commercial Market

The domestic commercial market is sustained by the Jones Act, which provides market certainty and stability. This law helps to ensure the existence of a domestic shipbuilding and ship repair industrial base. The Jones Act sustains a domestic market for which carriers, operators and shipyards vigorously compete.

Efforts by this Committee, in its support of the most recent U.S. Coast Guard Authorization Act, provided clarity about the Congressional intent of the application of the Outer Continental Shelf Lands Act (OCSLA) to all aspects of the development of offshore energy, not just production. That language, which was adopted into the full FY21 National Defense Authorization Act (NDAA), resulted in several shipyards confirming orders to construct new vessels to serve the burgeoning offshore wind market.

Other efforts by members of this Committee have also seen the potential benefits of ensuring access to our own domestic energy production. As the United States has become the world's leader in energy

production, so too should we encourage that our domestically produced natural resources, including LNG, be transported on U.S. vessels under such policies as proposed by Congressman Garamendi's Energizing American Shipbuilding Act. Not only would that help us regain a foothold on the international shipping market where we've ceded ground to heavily subsidized and government-backed shipyards, but there is a direct relationship from the construction of LNG tanker vessels to the recapitalization of our strategic sealift fleets because of the stabilization it would bring to the shipyard supplier base and shipyards generally.

Impact of Foreign Competition in Shipbuilding

I would be remiss if I did not acknowledge a long-standing but significant impact to the shipyard industrial base. Over the last twenty years, with significant government policy and financial assistance, global shipbuilding capacity grew dramatically, particularly in Asia but primarily in China. At its peak shipyards located in Asia had captured 92% of the world commercial shipbuilding market. Despite the recent severe and sustained downturn in the world commercial shipbuilding markets, Asian governments have doubled down on the support of their shipbuilding industries. Policies such as direct government subsidies and government-supported shipbuilding credit pools being used in Asian countries continue to distort the global shipbuilding market.

A recent UN report notes that "in several Asian countries, Governments have taken various initiatives to support the shipbuilding industry. The use of public funds to finance shipbuilding prompted a complaint at WTO against the Republic of Korea in November 2018, on grounds that it may grant subsidies that may have a substantial impact on the price of ships, ship engines and maritime equipment, affecting trade flows in these products. At the same time, the shipbuilding industry in several European countries has called for increased Government support to help achieve the target of zero-emission shipping by 2050 (JOC.com, 2018a, 2018b)"[7]

These countries are investing and financing their shipyard industries because they consider shipbuilding to be an issue of national sovereignty. The Navy, Congress and Administration need to recognize this distortion of the shipbuilding and repair markets as they consider the actions needed to protect and support the U.S. shipyard industrial base and the national security asset the industrial base provides to our national security. The people in our industry are true national security assets that cannot afford to be lost.

Conclusion

In conclusion, the Nation's shipyard industrial base has met all of the challenges they have faced while continuing to serve the national security and economic interests of the Nation. Looking towards the future, we hope that the Congress, and this committee in particular, continues championing the domestic shipyard industry and works with our government customers to provide stability and predictability for the men and women of the U.S. shipyard industrial base.

Thank you again Chairman Rogers and Ranking Member Smith for allowing me to testify alongside such distinguished witnesses today. I look forward to your questions.

[7] https://unctad.org/system/files/official-document/rmt2019_en.pdf

Matthew Paxton
President, Shipbuilders Council of America

Matthew Paxton was selected to be the President of the Shipbuilders Council of America [SCA] in 2007. In this capacity, he leads the team in advocating for a robust U.S. shipyard industrial base. The SCA is the national trade association representing U.S. shipbuilders, ship repairers and the shipyard supplier base in Washington, D.C. SCA's team of issue and industry experts advocate on behalf of the industry before Congress and the Executive Branch, as well as provide SCA members with in-depth analysis on regulations, legislation and budgets impacting the domestic shipbuilding and ship repair industry.

Prior to becoming President of SCA, Matthew served as Senior Counsel on Maritime, Oceans and Atmosphere for the U.S. Senate Committee on Commerce, Science, and Transportation. Prior to joining the Commerce Committee, he served as Legislative Director for Senator Ted Stevens from 2004 until 2005. From 2001 to 2004, Matthew was a Legislative Assistant to Senator Stevens. Matthew earned his B.A. degree in Political Science from the University of Washington in 1997 and his J.D. degree from Willamette University College of Law in 2001. He is admitted to practice law in Washington State.

With five years of legislative and policy experience in the United States Senate, Matthew has a strong focus on the legislative process, including the appropriations and authorizations committees of Congress. Additionally, he joined Adams and Reese in 2015 as a Partner in the firm's Washington, DC office. Practicing law since 2001, Matt is an attorney and lobbyist whose practice focuses on maritime law and policy, fisheries law, natural resources development, and environmental and energy policy issues.

DISCLOSURE FORM FOR WITNESSES
COMMITTEE ON ARMED SERVICES
U.S. HOUSE OF REPRESENTATIVES

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(5), of the Rules of the House of Representatives for the 118th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants), and contracts or grants (including subcontracts and subgrants), or payments originating with a foreign government, received during the past 36 months either by the witness or by an entity represented by the witness and related to the subject matter of the hearing. Rule 11, clause 2(g)(5) also requires nongovernmental witnesses to disclose whether they are a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing. As a matter of committee policy, the House Committee on Armed Services further requires nongovernmental witnesses to disclose the amount and source of any contracts or grants (including subcontracts and subgrants), or payments originating with any organization or entity, whether public or private, that has a material interest in the subject matter of the hearing, received during the past 36 months either by the witness or by an entity represented by the witness. Please note that a copy of these statements, with appropriate redactions to protect the witness's personal privacy (including home address and phone number), will be made publicly available in electronic form 24 hours before the witness appears to the extent practicable, but not later than one day after the witness's appearance before the committee. Witnesses may list additional grants, contracts, or payments on additional sheets, if necessary. Please complete this form electronically.

Hearing Date: February 8, 2023

Hearing Subject:

State of the Defense Industrial Base

Witness name: Matthew Paxton

Position/Title: President

Capacity in which appearing: (check one)

● Individual ● Representative

If appearing in a representative capacity, name of the organization or entity represented:

Shipbuilders Council of America

Federal Contract or Grant Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) or grants (including subgrants) with the federal government, received during the past 36 months and related to the subject matter of the hearing, please provide the following information:

2023

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A			

2022

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A			

2021

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A			

2020

Federal grant/ contract	Federal agency	Dollar value	Subject of contract or grant
N/A			

Foreign Government Contract, Grant, or Payment Information: If you or the entity you represent before the Committee on Armed Services has contracts or grants (including subcontracts or subgrants), or payments originating from a foreign government, received during the past 36 months and related to the subject matter of the hearing, please provide the following information:

2023

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A			

2022

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A			

2021

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A			

2020

Foreign contract/ payment	Foreign government	Dollar value	Subject of contract, grant, or payment
N/A			

Fiduciary Relationships: If you are a fiduciary of any organization or entity that has an interest in the subject matter of the hearing, please provide the following information:

Organization or entity	Brief description of the fiduciary relationship
Shipbuilders Council of America	President & CEO of the SCA

Organization or Entity Contract, Grant or Payment Information: If you or the entity you represent before the Committee on Armed Services has contracts or grants (including subcontracts or subgrants) or payments originating from an organization or entity, whether public or private, that has a material interest in the subject matter of the hearing, received during the past 36 months, please provide the following information:

2023

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A			

2022

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A			

2021

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A			

2020

Contract/grant/ payment	Entity	Dollar value	Subject of contract, grant, or payment
N/A			

DOCUMENTS SUBMITTED FOR THE RECORD

FEBRUARY 8, 2023


NDIA
VITAL SIGNS 2023
Posturing the U.S. Defense Industrial Base for Great Power Competition

There is a mismatch between what our national strategies aim to achieve and how our defense industrial base is postured.

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EXECUTIVE SUMMARY

The *2022 National Security Strategy* (NSS) states that "the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next."[1] Unfortunately, the defense industrial base (DIB) resiliency required to sustain the U.S. in great power conflict was sacrificed as part of the 1990s peace dividend. The powerhouses of industrial readiness – stable and predictable budgets, an experienced and specialized workforce; diversified and modern infrastructure; manufacturing innovation; and sufficient, including idle, capacity – have all atrophied under the combined transition to a services-based economy with a premium on just-in-time commercial supply chains.

The capacity of the U.S. defense industrial base to grow its output, fulfill a surge in military demands, and reconstitute in a major conflict stands as a key test of its health and readiness. There is a mismatch between what our national strategies aim to achieve and how our defense industrial base is postured. **Key industrial readiness indicators for great power competition are going in the wrong direction:**

- **Fewer People.** In 1985, the U.S. had 3 million workers in the defense industry.[2] By 2021, the U.S. had 1.1 million workers in the sector.
- **Fewer Companies.** In the last five years, the defense ecosystem has lost a net 17,045 companies[3] and the Department of Defense estimates the number of small businesses participating in the defense industrial base has declined by over 40% in the last decade.[4]
- **A Shrinking Financial Commitment.** From 1985 to 2021, national defense spending dropped from 5.8% to 3.2% of U.S. GDP[5], and the Congressional Budget Office projects a further decline to 2.7% by 2032.[6]
- **Less Predictability.** In 13 of the last 14 years, the federal government has operated under a continuing resolution (CR) for part of the year, preventing new starts essential for modernization and delaying increased production rates, multi-year procurement authorities, and advanced procurement funding essential for building capacity.
- **Limited Surge Capacity.** A lack of investment in infrastructure, equipment, idle capacity, and tooling, as well as an over-reliance on sole source suppliers, challenges both the readiness and the reconstitution of industry.

The federal government must prioritize removing policies, regulations and authorities that are strangling the defense industrial base and make significant, sustained and predictable financial investments to rebuild the DIB's strategic endurance and resilience. In the *Vital Signs 2023* survey, NDIA member companies are emphasizing that the federal acquisition process is growing more – not less – cumbersome; the lack of budget stability is breaking companies and causing significant workforce uncertainty; and the challenges of finding and retaining talent are impacting even our most strategic defense programs. The current inflation level was also highlighted as a cross-cutting issue impacting both the acquisition process and workforce management. Strong defense industrial readiness – ensuring our warfighters have everything they need so they never engage in a fair fight – is a key element of national deterrence. And if conflict ever erupted, national leaders will only have credible response options if they inherit the right investments to the DIB from this current generation of leaders. The government and the private sector must adapt, together, to address these challenges.

Key industrial readiness indicators for great power competition are going in the wrong direction.

INTRODUCTION

The National Defense Industrial Association (NDIA) has published *Vital Signs* over the last three years to encourage conversations at all levels of government and among Americans interested in national defense about the necessary policies and investments required to maintain the superior readiness of the U.S. defense industrial base (DIB). The defense industrial readiness policy goal is straightforward: to ensure our warfighters have the platforms, services, and technologies they need so they never engage in a fair fight against any competitor. This goal is personal for many working in industry. From the largest defense contractors to small defense companies and technology start-ups, many either have served in the U.S. military, or have family and friends who are serving, and therefore are committed to U.S. defense industrial readiness as national service from a different angle.

The capacity of the U.S. defense industrial base (DIB) to grow its output, fulfill a surge in military demands, and reconstitute in a major conflict' stands as a key test of its health and readiness. U.S. policies and financial investments are not currently oriented to support a defense ecosystem built for peer conflict. This was a troubling truth during the last twenty years of asymmetric conflict against non-state actors. In the return of great power competition, this gap is an unsustainable indictment.

Vital Signs 2023 seeks to convince the most experienced defense policy makers – both in and out of government – that despite significant analysis, extensive work by both the executive and legislative branches, and a widespread, bipartisan determination to fix the challenges impacting the defense ecosystem, the gap between intentions and the outcomes of current policies and processes is widening. Therefore, this year's report on the DIB departs significantly from earlier editions. While previous reports had over 60 indicators and included contextual challenges the DIB faced – for example, the global pandemic response of 2020 and 2021 -- this edition seeks to draw laser-focused attention to the enduring, systemic challenges NDIA member companies highlighted as their top concerns as they seek to re-orient in the current security environment. Specifically, NDIA member companies are emphasizing to government policy makers and external audiences that the federal acquisition process is growing more – not less - cumbersome; the lack of budget stability is breaking companies and causing significant workforce uncertainty; and the challenges of finding and retaining talent are impacting even our most strategic defense programs. The current inflation level was highlighted as a cross-cutting issue impacting both the acquisition process and workforce management. Failure to tackle these challenges will afford a competitive advantage of rivals to U.S. global leadership.

The authority of NDIA's leadership voice in educating external stakeholders on the current and projected health of the defense ecosystem is based on the breadth and diversity of the companies it represents. Over 170 NDIA member companies, representing 35% of total defense spending in Fiscal Year 2022, participated in the survey underpinning *Vital Signs 2023*, almost evenly distributed among small, medium, and large companies.

The industrial ecosystem around the Department of Defense has clarity on the return of economic and technological great power competition. The purpose of *Vital Signs 2023* is to provide the U.S. government and external audiences with the same clarity regarding the challenges preventing the DIB from fully realizing the public policy goal of being the modern, diverse, and resilient ecosystem required to support the U.S. military in the current security environment.

METHODOLOGY

This year's edition of *Vital Signs* differs significantly from previous years. Previous reports tracked over 60 indicators to assign an overall health grade for the U.S defense industrial base (DIB). This edition builds on the insight accrued from previous versions and instead focuses on the structural issues impacting the DIB and the implications for its ability to posture and, if necessary, reconstitute in an era of great power competition.

Vital Signs 2023 has three main sources of data: the first is a proprietary survey conducted by NDIA that leverages the strength of NDIA's robust membership – representing companies of all sizes across all DIB sectors.

The second source of information – publicly available reports and data – reflects current administration policies, federal government statistics and metrics, bipartisan executive and legislative public reports, and analysis from research institutions. The purpose is to demonstrate a clear comparison between public policy goals and current public policy outcomes.

The third source (comprising three indicators) does not come from publicly available data: (1) the number of workers in the DIB; (2) the number of DIB companies; and (3) the number of new DIB entrants. Govini, a decision-science company – with whom NDIA has partnered in the past – routinely engages the Department of Defense (DoD) in research initiatives, provided the last two data points.

To calculate the total number of workers in the DIB, NDIA used the following methodology:

- NDIA reviewed all DoD contracts – identified by North American Industry Classification System (NAICS) codes – in Bloomberg Government[8] for Fiscal Year 2022 (FY22).
- NDIA then compared the 100 largest NAICS codes for DoD spending against the Bureau of Economic Analysis data on total economy-wide spending for that particular NAICS code.
- DoD spending levels were then taken as a fraction of the total spending to determine its percentage of each NAICS code.
- NDIA then used Bureau of Labor Statistics data to approximate the total number of workers in a NAICS code. That number was then multiplied by the fraction of the NAICS for DoD spending. For example, if eighty percent (80%) of a NAICS code is DoD spending, we estimated that 80% of the workers in the NAICS code work in the DIB.
- Finally, the number of workers for each NAICS code was totaled to get an estimate for the total number of workers in the DIB.

THE EVOLVING STRATEGIC ENVIRONMENT

The U.S. is in the middle of a period of profound transition, both domestically and internationally. Over the past several decades, our economy has transitioned from primarily a manufacturing and goods economy to a digital and services economy. Since 2008, the country has grappled with the social and economic consequences of parts of the country not fully recovering from the Great Recession. The global pandemic of 2020 caused significant shifts in population demographics and what Americans buy and consume. These trends have changed how Americans work, connect, and communicate with each other, and it has shifted demand and supply for the education and training pipelines designed to prepare new entrants for the workforce. Government at the federal and state level are in the process of responding to this significant reorientation of American society.

The magnitude of the transition and its associated disruptions have caused the U.S. to look inward. Polling from the 2020 Presidential election and the 2022 Congressional midterms both showed national security challenges ranked well below economic and cultural concerns.[9] One of the organizing themes of both the last two presidential elections was the focus on rebuilding American domestic resiliency with specific emphasis on American workers and economic sectors that have not benefited from the transition to a digital and services economy. As will be discussed further, critical components of the U.S. defense industrial base (DIB), including the manufacturing sector and skilled trade employment, have atrophied in this economic transition.

These dynamics have been building for over 30 years under the leadership of multiple U.S. Presidents and Congresses. Upon the conclusion of the Cold War, President George H. W. Bush announced the world had entered a "unipolar moment." Instead of great power competition, the common aspiration for peace and prosperity would be a unifying force. To close a bipartisan budget deal, Congress reduced the budget for the Department of Defense (DoD), and the U.S. concluded the robust military build-up initiated under the Carter Administration and accelerated under the Reagan Administration. U.S. international leadership shifted its focus to integrating the largest global economies into the institutions of the international system. After the expense – in both blood and treasure – of the ideological struggle of the Cold War, the U.S. appeared to have finally won its peace dividend. But world history is replete with the results of dominant countries assuming the world will remain static under preferred power structures.

Nearly three decades later, it has become clear that despite the promise of the early 1990s, the peace dividend was a phase of respite, not the conclusion of a global battle over leadership and values. The *2022 National Security Strategy* (NSS) states that "the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next."[10] The U.S. is once more engaged in economic and technological competition with the governments of the People's Republic of China (PRC) and the Russian Federation. Each capital, seeking to reassert its will within its traditional spheres of influence, has become more aggressive. Beijing has taken steps to militarize and control the South China Sea, through which energy resources to Northeast Asia and international commerce flow, and it is taking a whole of nation approach to coercively integrate Hong Kong and to signal its intention to eventually do the same to Taiwan under the Chinese Communist Party's (CCP) rule. Meanwhile, a dictator in Moscow initiated an illegal and brutal invasion of Ukraine, a sovereign neighboring country. In both cases, each country is seeking to capitalize on the U.S.' inward focus to re-establish buffer zones against perceived external threats based on historical and psychological security vulnerabilities.

In 2018, the Department of Defense assessed it would take significant time and government financial resources to reorient the defense industry to effectively handle peer conflict.

– DoD Report, 2021

In this context, the U.S., along with its Allies and partners, must be prepared to prevail in the return of great power competition. One key area in which the U.S. must re-establish its competitive advantage is revitalizing a brittle U.S. DIB. The capacity of the DIB to grow its output, fulfill a surge in military demands, and reconstitute in a major conflict stands as a key test of its health and readiness. Currently, U.S. policies and financial investments are not oriented to support a defense ecosystem built for peer conflict. In 2018, the DoD assessed it would take significant time and government financial resources to reorient the defense industry to effectively handle peer conflict, requiring: "[difficult] but necessary investment choices, including expanded funding for capital investment in facilities and training and maintaining the workforce. Without that serious and targeted investment -- billions instead of millions -- America's DIB is simply unsustainable, let alone capable of supporting our deployed forces and legacy equipment while solving complex warfighting challenges posed by advanced technologies in the 21st century, from AI and cyber to hypersonics and autonomous air and sea systems."[11]

THE RISE OF NEAR-PEER COMPETITORS

While the U.S. talks about the re-emergence of great power competition, its global competitors are focused on eroding U.S. economic and military competitive advantage. In 1985, at the height of the U.S. military build-up for peer competition against Russia, the People's Republic of China (PRC)'s GDP was only 15% of U.S. GDP. In 2016, China surpassed the U.S., and by 2021, China's GDP was 118% of U.S. GDP (adjusted for purchasing power).[12] From this position of economic strength, the PRC is taking a disciplined approach to re-order the international system – its rules, norms, standards, and values – on terms favorable to itself.

China is also steadily increasing its defense spending and advancing its military capabilities. The PRC has made significant financial investments in its DIB, jumping from $10 billion in 1999 to $293 billion in 2021.[13] With strategic discipline, the PRC is using those financial investments to steadily modernize its nuclear capabilities; hone sophisticated strike, space, and cyber capabilities; and build out its navy in "one of the most remarkable and strategically disruptive global defense spending trends in the last two decades."[14]

Defense spending is only one part of the story. The PRC is also demonstrating its intentions by harnessing the power of strategic industrial policy. The Chinese Communist Party's (CCP) leadership is also focused on building internal resilience and decreasing external dependence of the country's "productive forces," especially its industry, infrastructure, human capital and technology.[15] Through its Dual Circulation Policy, the CCP is determined to reduce its vulnerability to being interconnected with and dependent on an international economy. Simultaneously, the CCP also intends to increase the vulnerability of other countries by deepening their dependence on China in the ultimate expression of national self-protection. While for the last thirty years the U.S. pursued policies that led to both boom-bust cycles of defense spending and drastic consolidation of the largest defense contractors from fifty-one to five,[16] the PRC has leveraged its growing GDP to expand its defense industrial sector.

In addition, Russia's military capabilities oriented to great power competition are also significant. Due to active conflict related to the illegal invasion of Ukraine, any snapshot of Russian military capabilities and intentions for this report would be fragile and quickly perishable. Therefore, *Vital Signs 2023* will focus on Russian military ambitions for any potential peer conflict. To that end, it is important to note the Russian government's focus is on nuclear, long-range, and precision strike capabilities; unmanned underwater vehicles; hypersonic strike systems; and sophisticated space and cyber capabilities.

The illegal invasion of Ukraine highlights the shallow industrial bench for critical conventional and precision-guided munitions and their component parts. Congressional leadership during an oversight hearing on defense industrial readiness emphasized the "lack of responsible and rapidly scalable production capacity… highlights issues with our planning factors and manufacturing flexibility for long-lead items needed in short order, with little or no advanced warning."[17] In the same hearing, it was noted that when the government does not pay to maintain production capacity, testing equipment will become obsolete and supply chains are likely to have broken links.[18]

"[T]he trouble is we have a two to five year lag to bring [munitions] stocks back. We have that because we have not invested, as a nation, in the infrastructure, the equipment, and the tooling to have capacity and throughput."[19]

In 1985, China's GDP was only 15% of US GDP. In 2016, China surpassed the U.S., and by 2021, China's GDP was 118% of U.S. GDP (adjusted for purchasing power).

The invasion has reminded government leaders on both the lead times required to start or expand production lines and the investment necessary to replenish and sustain dangerously low stockpiles for both the U.S. and its network of alliances and partnerships.

THE U.S. RESPONSE

In this evolving geostrategic environment, the Department of Defense (DoD) is pursuing both near-term and long-term strategies to maintain deterrence and enhance readiness. The Department is currently focused on:

- reinforcing current U.S. military deterrence capability.
- working with U.S. Allies and partners.
- shoring up fragile and vulnerable supply chains for the Department's most sensitive systems, services, and components, including microelectronics.
- building resiliency in the defense industrial base (DIB); accelerating research, development, and prototyping and fielding of operationally relevant emerging disruptive technology; and
- engaging in campaigning and exercises to refine and modernize its operational concepts.

While focused on the very near future, DoD is simultaneously working through its long-term strategy and looking further out to the mid-2030s as it considers peer conflict. For the last 40 years, the U.S. has benefited from a technological competitive advantage which afforded it unimpeded logistics and power projection, military dominance in every operational domain, and – despite the brutality of violent extremist organizations – asymmetric fighting advantages against its adversaries. The cost of war was borne by a portion of the Joint Force, and most Americans were shielded from direct, daily reminders of the human cost of conflict.

A return to great power competition changes each of these dynamics. With Russia modernizing its nuclear strike systems, and China focused on building out its nuclear capabilities, as well as adversary advancements in hypersonic and offensive cyber and space capabilities, the U.S. homeland is no longer considered a sanctuary, which is why defending the U.S. homeland is the 2022 NDS's first articulated priority.[20] Conflict with one or more near peer competitors will likely involve asymmetric attacks on U.S. critical infrastructure, contested and degraded logistics and communications, and dispersed U.S. units fighting directly against adversaries with platforms, systems, and munitions of roughly technical parity. In great power competition, the entire nation, not just parts of the Joint Force, will be directly impacted by any potential conflict.

A key area of tension for both the near- and long-term strategies is to balance resource requirements to address the changing *character* of war with the resource requirements that address the inherent *nature* of war. Discussions regarding the future *character* of war focuses on the use of emerging disruptive technology, such as artificial intelligence and machine learning; offensive and defensive cyber; autonomy for unmanned platforms; Fifth Generation (5G) and Future Generation (FutureG) communications and information technology; hypersonics, quantum computing; and directed energy. This appropriately drives federal policymakers – in both the executive and legislative branches – to find ways of integrating nontraditional defense companies, as well as national laboratories and academia, into the defense industrial ecosystem. The Russian invasion of Ukraine has emphasized both the powerful effects of emerging disruptive technology on the battlefield and the importance of partnership with these public and private sector entities.

At the same time, discussions regarding great power conflict cannot ignore the inherent *nature* of war, which involves direct contact with the enemy and requires the prevail not just of national will, but also sufficient industrial capacity to produce and replenish platforms, munitions, and materiel. For industry, this requires consistent, steady policy and financial investments to increase the capacity and modernization of our defense infrastructure, including shipyards, machine tooling industrial facilities and the ability to accelerate advancements in the capabilities of our nuclear triad; major air, land, and sea platforms; and conventional as well as precision-guided munitions.

One of the biggest challenges will be to align the DoD's senior civilian leadership, the military services and combatant commands, Congress, and defense industry over the sequencing and resourcing priorities for peer conflict over the next fifteen years. Currently, industry is trying to respond to multiple planning timelines for any potential peer conflict. On the one end, DoD's senior civilian leadership is trying to prepare the Joint Force for conflict in the mid-2030s, which emphasizes U.S. technological competitive advantage and updated operational concepts, while the military services, combatant commands, and Congress are more oriented to preparing for conflict within the next five years, which requires the necessity of ramping up capacity. A high-end fight with a peer adversary will require the U.S. to have both technological advantages and significantly expanded capacity.

SURGE LIMITATIONS OF THE COMMERCIAL INDUSTRIAL BASE

During the last two major defense industrial build-ups in U.S. history – during World War II and during the Carter and Reagan Administrations – the U.S. was able to surge the existing capacity in its commercial industrial base to augment the specialized expertise of the defense industrial base (DIB). This is not currently a viable option for several reasons, including a significant decline in the workforce with relevant skills and a consolidation of the infrastructure required to surge a ramp-up of significant capacity.

The atrophy of the U.S. manufacturing sector is a critical issue in an era of economic and technological great power competition. Manufacturing is a critical, foundational element of the defense industrial workforce, and the trend line for skilled manufacturing workers is rapidly going in the wrong direction. Since its peak in June 1979, the U.S. manufacturing sector lost 7.1 million jobs – 36% of the industry's workforce – with more than 5 million manufacturing jobs since 2000 alone.[37] As the Department itself notes, the "advanced weaponry and supporting equipment necessary to dominate in modern warfare require highly sophisticated manufacturing, yet the domestic workforce has suffered for decades."[38]

The nexus of a declining U.S. manufacturing base and a reduction in defense industrial readiness has drawn the attention of national policymakers on a bipartisan basis. In the *2017 National Security Strategy*, the intersection between the U.S. manufacturing base and defense capabilities received significant attention, concluding with the point that as "America's manufacturing base has weakened, so too have critical workforce skills ranging from industrial welding to high-technology skills for cybersecurity and aerospace."[39] The *2022 National Security Strategy* highlighted the importance of a strong U.S. manufacturing sector as a critical factor in the U.S.'s ability to successfully respond to the illegal invasion of Ukraine.[40]

As previously discussed in this report, the last two presidential elections focused on rebuilding American domestic resiliency with specific emphasis on American workers and economic sectors that have not benefited from the transition to a digital and services economy, of which the manufacturing sector is one of the primary drivers of this focus. There can and should be significant, bipartisan interest at the national level to continue to address the challenges impacting this foundational part of the American economy. As a policy matter, one of the challenges is the need to reinvigorate the reputation and respect for expertise in skilled trades. The transition to a services economy has not only resulted in a decline in manufacturing, but correspondingly has reduced the demand for skilled labor. NDIA member companies note new entrants to the job market are not necessarily encouraged to pursue apprenticeships and work in the skilled trades. This is consistent with the *2021 House Armed Services Committee Defense Critical Supply Chain Task Force report*, which highlighted the "challenges related to social perceptions of industrial and manufacturing work."[41]

RESTORING INDUSTRIAL READINESS POWERHOUSES

The defense industrial base (DIB) resiliency required to sustain the U.S. in great power conflict was sacrificed as part of the 1990s peace dividend. **The powerhouses of industrial readiness – stable and predictable budgets, an experienced and specialized workforce; diversified and modern infrastructure; manufacturing innovation; and sufficient, including idle, capacity – have all atrophied** under the combined transition to a services-based economy with a premium on just-in-time commercial supply chains. And it is suffocating under a worldview paradigm that fails to resource the industrial footprint required to prevail in near-peer conflict.

The *2022 National Defense Strategy* (NDS) emphasizes deterrence by resilience and defines resilience as "the ability to withstand, fight through, and recover quickly from disruption."[21] For the U.S. defense industry to effectively partner with DoD, the federal government must prioritize resetting policies, regulations, and authorities that are strangling the DIB and to make significant, sustained, and predictable financial investments to rebuild the DIB's strategic endurance and resilience.

Public policy prioritizes expanding, modernizing, diversifying, and building resilience into the DIB, and there has been sustained bipartisan efforts to attract new Department of Defense (DoD) commercial partners. In addition, the illegal invasion of Ukraine and increased attention to the security environment in the Indo-Pacific region are setting the conditions for an increased demand signal from the Department to industry. And yet, in recent years, the U.S. DIB has declined in size. While there were just over 8,300 new entrants in 2021, even more firms left with the total number of defense companies declining by over 3,300 in the same period. In the last five years, the DIB has lost 17,045 independent companies. In addition, DoD estimates the number of small businesses participating in the DIB has declined by over 40% percent in the past decade.[22] These net numbers also hide other vulnerabilities to the readiness and reconstitution of industry. One key issue is the over-reliance of sole source suppliers, including from foreign sources. In *Vital Signs 2023*, 42% of the NDIA member companies reported being the sole eligible provider in the U.S. for a defense related product. The U.S. defense sector is contracting and is not diversifying, the exact opposite of policy objectives.

Figure 1: **New Entrants In The U.S. DIB**

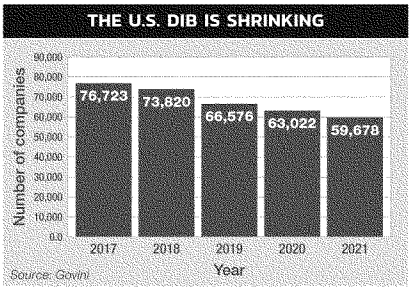

Figure 2: **Total Number of Companies in the U.S. DIB**

To align policy objectives with the preferred outcomes of an experienced and specialized workforce, diversified and modern infrastructure, manufacturing innovation, and sufficient capacity, the federal government – both executive and legislative branches – must address the most pressing challenges preventing the defense ecosystem from re-posturing:

- **inflation impacts.**
- **burdensome acquisition processes and regulation.**
- **the lack of budget sufficiency and stability; and**
- **finding and retaining workforce talent.**

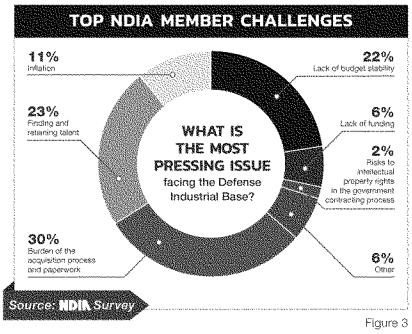

Figure 3

Addressing Inflation Challenges

U.S. defense companies are facing significant domestic economic headwinds. The Federal Reserve aggressively used its economic management tools in 2022 to reduce inflation rates, which reached their highest levels in 40 years.[23] It raised interest rates seven times[24] in 2022, driving many financial analysts to conclude that its efforts to tame inflation may trigger an economic recession. In December 2022, the Federal Reserve increased interest rates to 4.5%, the highest in 15 years.[25] Increased interest rates increase the cost of capital, restrict both demand and supply for commercial loans, and heighten the specter of recession conditions. The *Vital Signs 2023* survey results reflect the general unease NDIA member companies have regarding challenging macroeconomic conditions continuing in 2023. **While roughly one in five surveyed companies assessed general business conditions would improve, the majority – 78% – thought conditions would either remain the same or get worse.**

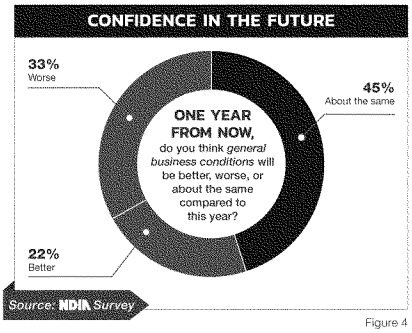

Figure 4

The underpinning drivers of high inflation levels are geo-strategically fragile supply chains, amplified by the backlogs created during the 2020-2021 global pandemic, and tight labor markets. The combination of highly disrupted supply chains, uneven swings in consumer supply and demand for goods and services, and altered and tightening labor markets led to government intervention across the economy in 2020 and 2021, including for the DIB.[26] *Vital Signs 2023* reflects these ongoing factors. NDIA member companies were particularly concerned about increased cost of production inputs (59%), increased labor costs (72%), and finding or retaining workers (88%).

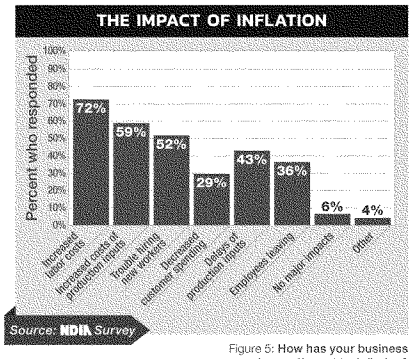

Figure 5: **How has your business been affected by inflation?**

NDIA previously reported[27] on the damaging impact inflation is having on defense contracts. While new contracts being awarded will factor recent inflation levels, acquisition contracts currently being executed were *negotiated prior to* these historically high levels. Congress provided both authority and funding in the fiscal year 2023 legislative cycle to provide broad relief to any current contracts being renegotiated due to revised economic adjustments, with no limitation on the year of award. Transparency regarding the implementation decisions and the funding distributions will be important, especially regarding adjustments for small businesses and middle tier suppliers.

Improving Doing Business with DoD

As previously noted, the defense ecosystem is shrinking, not expanding and diversifying. *In Vital Signs 2023*, NDIA member companies provided a baseline that it is easier to work with non-government customers than DoD. However, the survey results also indicate defense companies find it harder to do business with DoD than other federal customers.

The volume of literature tackling the origins and reasons of the complicated federal acquisition process is extensive, as have been the bipartisan government efforts to simplify the process. That said, there are key disconnects between government and industry in the federal acquisition process that merit mention in this report. These disconnects include failing to: develop sustainable requirements early in the process; maintain requirements discipline; support a common understanding between the executive and legislative branches of acceptable levels of risk in the prototyping, testing, and evaluation process; and rebuild a working understanding of the nexus between DoD budget formulation and private sector business decisions.

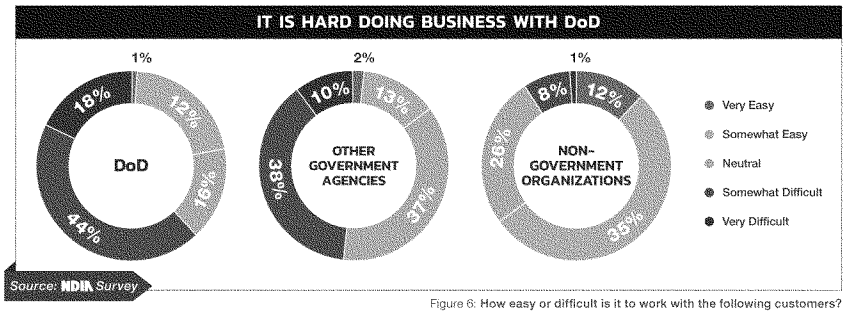

Figure 6: **How easy or difficult is it to work with the following customers?**

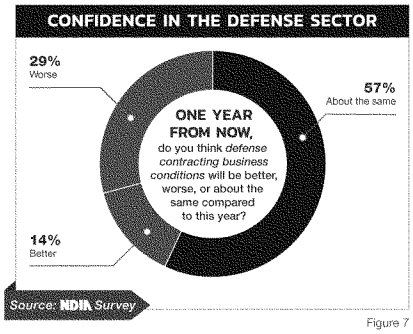

Figure 7

In addition, while all defense companies are impacted, small and medium sized businesses have unique challenges contending with compounding regulation or policy-driven acquisition requirements that are also putting significant pressure on companies. DoD itself recently acknowledged regulations can create barriers or increase the costs on small businesses that larger companies with more resources are better positioned to navigate.[28] Two current significant areas of concern for NDIA member companies are the proposed rule for disclosure of climate emissions and the pending rulemaking for the cybersecurity maturity model certification (CMMC) requirements.

In this context, it is unsurprising NDIA member companies have an even more pessimistic view about defense contracting business conditions improving in 2023 compared to general business conditions. Specifically, the *Vital Signs 2023* survey results showed that while 22% thought general business conditions would get better in 2023, only 14% thought defense contracting business conditions would improve. In addition, despite the continued public policy emphasis on acquisition reform, over half – or 57% - of survey respondents reported they expect defense contracting business conditions to remain the same in 2023. Industry's assessment that it will be harder to conduct business with the Department than in the civilian economy under these economic conditions is pointed feedback from an industry currently responding to surge demand signal with the illegal invasion of Ukraine and quietly preparing against the darkening security environment in the Indo-Pacific.

Prioritizing Sufficient & Stable Budgets

Unlike their peers in the commercial sector, U.S. defense companies are tethered to annual defense resourcing decisions. While defense spending is sizeable, it is near a record low as a percentage of the U.S. economy, and the current five-year outlook is even more challenging. For example, **observing the trend line from 1985 to 2021, national defense spending dropped from 5.8% to 3.2% of U.S. GDP.** Furthermore, the Congressional Budget Office forecasts defense spending as a percentage of GDP dropping to 2.7% by 2032.[29] The U.S. must change its defense resourcing strategy to support an industrial footprint required to prevail in great power conflict.

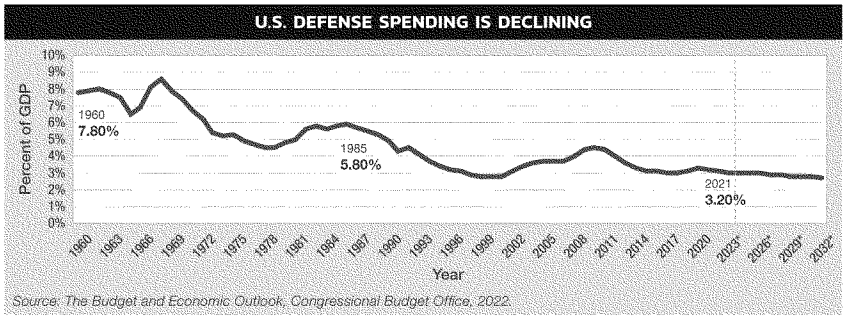

Figure 8: **Defense as a Percent of GDP**

The U.S. must re-prioritize budget stability and predictability for the federal government. DoD and the U.S. DIB have endured budget instability for 13 of the last 14 years as the federal government has operated under a continuing resolution (CR) for part of the year. Under a CR, the only authority the federal government, including DoD, has is to maintain the same rate of spending for current activities and therefore cannot begin new programs or initiatives. **The result is the parts of the budget most crucial to re-orient DoD to prepare for, deter, and – if necessary – respond to peer conflict are the accounts most vulnerable to being cut or squeezed during budget instability: research & development for emerging technologies, as well as procurement and sustainment of current and next generation major platforms.** Only rivals to U.S. leadership benefit from the misalignment of resources and the waste of time and momentum.

Furthermore, since fiscal year 2010, Congress has included additional language in every CR to further restrict "DoD's use of amounts appropriated through the CR to initiate new production of items, increase production rates above those sustained in the prior fiscal year, or initiate multi-year procurements using advance procurement funding for economic quantity procurements."[30] Multi-year contracts and procurement authorities for long-lead parts are critical contracting mechanisms essential to replenishing and increasing munition stockpiles. These contracting mechanisms are also critical to keeping strategic submarine construction schedules – which have little margin for error in replacing legacy capacity – on track. Therefore, every CR introduces delay and friction into critical acquisitions required to increase the capacity and enhance the capability of the U.S. military.

> **The continuing resolution (CR) "stopgap measures are wasteful to the taxpayer... [and] damage the gains our military has made in readiness and modernization. Ultimately, a CR is good for the enemy, not for the men and women of the U.S. military."[31]**
>
> **– U.S. Congressional Hearing, 2019.**

Resolution of political budget battles in Washington also do not necessarily translate into viable business solutions for defense companies. While a continuing resolution is preferable to a lapse in appropriations (colloquially referred to as a government shutdown), the hidden cognitive trap in this situation is that while institutions located in Washington, including the Pentagon, have adjusted their processes to insulate themselves – to the extent possible – from instability, the impact on the DIB remains acute. A continuing resolution puts pressure on the defense ecosystem, especially for technology start-ups, small businesses, and middle tier suppliers, as DoD's planning assumption under CRs is to build a six-month delay in contract obligations after the final budget is approved. In the interim, small- and medium-sized companies grapple with unpredictable cash flows and keeping critical nodes of their supply chains – often single source – viable. And **the imposition of stop work orders negatively impacts the hiring and retaining of workers with the right credentials and experience.**

Continuing Resolutions Create High Workforce Uncertainty

A NDIA member company, headquartered in the National Capitol Region, has several open contracts with a military service. For one of its most important contracts, it engages with the contracting office located in the Midwest, although the execution of the contract is in support of several military installations on the West coast, where most of its workforce is located. Over the last few years, under multiple continuing resolutions, the military service has several times issued a "stop work" notice to the company for this particular contract. Once the final appropriations bill has been approved, the military service has re-started the order.

Unfortunately, the cycle has caused significant financial and workforce challenges for the company. Each time the "stop work" notice comes through, the company has been forced to lay off employees and payout unused vacation and sick leave. This has happened several times as the holidays were approaching. And as the employees live in an area that has few alternative employment opportunities, most must apply for unemployment insurance and, increasingly, many of them also apply for workers' compensation benefits. Each time this happens, the company ends up losing some employees, but the cost increases each time they hire back the remainder because their insurance premiums to state worker compensation funds increase as the company's employment stability decreases. The company is just one specific example of the thousands of companies in the DIB that must decide each year if they are going to exit the sector. It also reinforces the point DoD made last year when it noted – in a report on the state of competition in the DIB – that "[f]luctuations in defense contracts increase the risk that individual companies will lose production work and be unable to retain their workers on defense production lines."[32]

Rebuilding An Experienced Defense Workforce

The U.S. has several competitive advantages compared to its global competitors. One is the quality of its experienced and specialized defense workforce, which must be both preserved and expanded. In the transition to a digital and services-based economy, the competition with the commercial sector for science, technology, engineering, and mathematics (STEM) workers is significant, and the overall manufacturing workforce has declined. In 1985, the U.S. had 3 million workers in the defense industry. By 2021, the U.S. had 1.1. million workers in the sector.[33] An experienced and specialized defense workforce is a critical element of restoring industrial readiness at the scale required for a fight with a peer competitor. Turning this trend line around will require sustained policy attention and significant resources to rebuild talent pipelines and to retain experienced workers.

The DIB faces significant challenges in filling both current and anticipated STEM and skilled labor employment. The Bureau of Labor Statistics (BLS) reports in 2021 there were nearly 10 million workers in STEM occupations across the U.S. economy, and this total is projected to grow by almost 11% by 2031, over two times faster than the total for all occupations.[34] Both the federal government and the DIB will be competition for these new entrants to the workforce with the commercial sector, which will have more flexibility in offering competitive compensation packages to recruit and retain them. This is an area of direct competition with U.S. rivals. A 2022 study by the RAND Corporation,[35] required by the Fiscal Year 2021 National Defense Authorization Act, assessed China will be vulnerable to significant workforce upheaval over the next ten years, with its STEM workforce insufficient in both quantity and quality in the next decade. Sustained and targeted policies to recruit and retain STEM workers in the defense industrial ecosystem would turn this race for talent into a competitive advantage for the U.S.

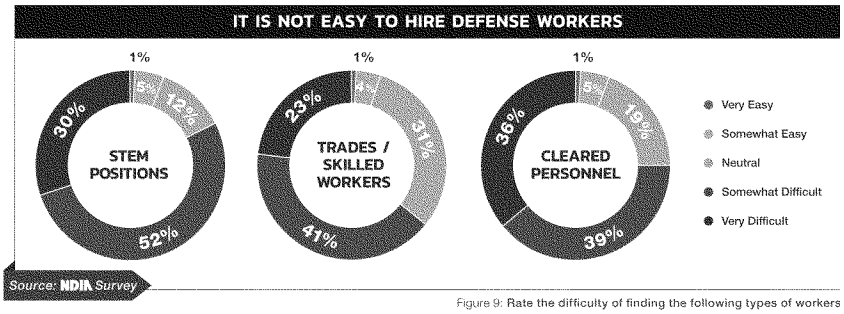

Figure 9: Rate the difficulty of finding the following types of workers

In addition, sustained and targeted policies to rebuild and expand the capacity of the defense skilled labor workforce is essential. The manufacturing sector has a tight labor market with a growing number of unfilled positions. In February 2022, the number of job openings increased from 577,000 to 808,000 open positions.[36] Reversing the loss of defense skilled labor and filling key vacancies matters under great power competition because skilled workers are essential to increasing the capacity of the U.S. military, including the construction of naval platforms and the production of ground vehicles and aircraft.

NDIA member companies highlight several factors contributing to their recruiting and retention challenges, including the rigidity of labor categories in contracts and the impact current inflation rates under existing DoD contracts are having on defense companies' ability to increase compensation for employees. As workforce challenges and the availability of talent are critical concerns for NDIA member companies, the *Vital Signs* 2023 survey included focused workforce questions. The results were unambiguous. **NDIA member companies reported significant challenges recruiting STEM and skilled trade workers and report equally significant challenges in competing with non-defense firms for talent.** A total of 82% of NDIA member respondents reported it was "somewhat difficult" or "very difficult" to find STEM workers and 64% reported it was "somewhat difficult" or "very difficult" to find skilled labor workers. In key skills such as engineers and software engineers, the DIB is in direct competition with the U.S. commercial sector, which has more flexibility to compete for workforce talent. In *Vital Signs 2023*, 80% of survey respondents reported it was "somewhat difficult" or "very difficult" to compete with non-defense firms for talent.

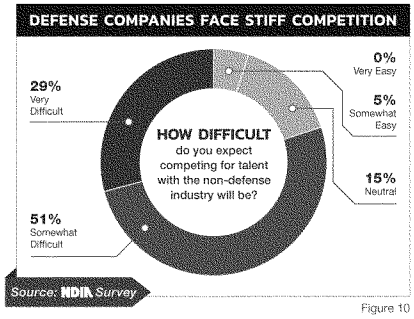

Figure 10

NEXT STEPS

NDIA member companies have been clear that the two most significant steps the executive and congressional branches can take to support the U.S. defense industrial base (DIB) are to streamline the acquisition process (34%) and to ensure budget stability (34%). The common reaction to these results is likely to either attempt to simplify the problem by pointing a finger at one or more of the federal branches of government or to accept that these concerns are enduring business challenges that need to be managed but cannot necessarily be solved. Neither response works when the U.S. is dealing with the re-emergence of great power competition. A third way is required: the government and private sector must adapt together to address these challenges.

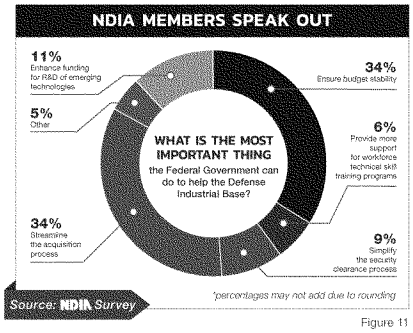

Figure 11

NDIA member companies reported in the *Vital Signs 2023* survey that over the next year 58% believed defense contracting business conditions would be about the same and 29% reported the business conditions would get worse. Put another way, 87% believed that despite the sense of urgency to re-posture the DIB to deter and – if needed – decisively prevail in peer conflict, nothing about their business environment is going to change.

NDIA believes change can happen. We will therefore spend the coming year working with our member companies, divisions, and chapters on priority policies that will support re-posturing the DIB to align it with national strategic objectives. In 2023, NDIA is committed to working on securing budget stability and sufficiency; advancing DoD digital modernization, facilitating foreign military sales modernization and technology integration; restoring industrial readiness, capacity, and infrastructure; and enabling more resilient supply chains. Our Emerging Technologies Institute will continue to lead on the best ways for government and industry to partner to integrate and scale operationally relevant emerging technology on relevant timelines for any potential per conflict. NDIA will integrate acquisition reform and workforce development as cross-cutting issues into each of the policy priorities the association tackles, and each policy areas will integrate the best solutions for small businesses, middle-tier suppliers, and non-traditional defense companies.

U.S. industry is not currently postured to be resilient and reconstitute in a peer conflict. Strong defense industrial readiness – ensuring our fighters have everything they need so they never engage in a fair fight – is a key element of current national deterrence. If conflict ever erupted, national leaders will either have credible or constrained response options based on the investments to the DIB they inherit from this current generation of leaders serving in the executive branch, the congressional branch, and industry.

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WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

FEBRUARY 8, 2023

RESPONSES TO QUESTIONS SUBMITTED BY MR. ROGERS

Mr. FANNING. The transition of critical supply chains to alternative sources takes considerable due diligence, time, and resources, and suppliers need clear systems and flexible policies that reflect this reality. Without ample transition time, critical supply chains could be disrupted, particularly as some critical materials come from sole sources. Our sector is moving with a sense of urgency to identify alternative sources for the range of critical materials, and we're working domestically and internationally to secure our supply chains.

There are some existing policies that make materials processing supply chain resiliency even harder and should be reexamined. Tariffs, like section 232, on critical materials from allied countries, particularly when no domestic sources are available, is an example. The specialty metals supply chain relies on steel and aluminum as key inputs in a variety of downstream products and has been adversely impacted by price increases stemming from tariffs—leading to supply interruptions, cost increases, chilled development, and loss of competitiveness of both defense and commercial product lines within the aerospace and defense sector. Congress should consider repealing section 232 tariff on these goods. [See page 30.]

Mr. NORQUIST. NDIA and our member companies are equally concerned that the U.S. is so heavily reliant on the People's Republic of China (PRC) for rare earth minerals due to the threat this reliance poses to U.S. national and economic security. We commend the work already done by Congress and the Department of Defense (DOD) to encourage the development of additional sources of domestic and friend-shore production.

To transition to a larger percentage of preferable sourcing for rare earth minerals, such as in the United States or from U.S. Allies, it is necessary to first recognize the barriers currently preventing this transition: current U.S. environmental regulatory challenges and the length of time needed to complete such a transition. These two barriers drive up-front business costs, measured in terms of financial cost and in lead time, for new sourcing of rare earth minerals.

Commercial price, in the global marketplace, is the main driver of where materials are sourced. Low-cost producers, particularly the PRC, do not have workforce safety or environmental protection regulations. This allows government-backed industries in China to sell at lower prices and to dominate rare earth supply chains. This is part of the PRC's strategic and disciplined industrial policy to decrease its reliance on the international economy while increasing the dependence of the U.S. and other countries on China's industrial production capacity. As a specific example, the PRC has made the necessary investments to control lithium-ion battery supply chains.

Moving processing to the United States or to U.S. allies would require addressing the impact the Environmental Protection Agency (EPA)'s current regulations have on the cost of U.S. domestic production and processing of rare earth minerals (as well as Allies' equivalent domestic agencies). In addition, it would require significant commitment to gain buy-in from local communities where mines would be opened. Finally, it will require policy consistency due to the length of time between authorizing a mine for extraction and actual extraction and processing of the minerals. For these reasons, unless these current barriers are adequately addressed, it is unlikely potential U.S. producers will be able to secure the necessary financing from banking institutions.

NDIA recommends that Congress support legislation to provide necessary changes to current authorities and to increase funding to encourage investment in domestic and friend-shore rare earth mineral production. This legislation could include:

- Using Defense Production Act (DPA) and tax incentives to encourage U.S. commercial companies to fund development and operations of domestic mineral sources.

- Establishing long-term agreements with raw materials suppliers to create investor confidence in order to get private investment funding.
- Encouraging the EPA to improve the current permitting and regulation process. In addition, NDIA recommends Congress engage with DOD to determine the Department's strategy to qualify current and emerging suppliers to receive support through DPA.

For a more complete perspective of what Congress could do to encourage U.S. rare earth mineral production, NDIA would be willing to convene a forum with a number of suitable member companies who could share their expertise and perspectives on the issue with Congress. [See page 30.]

Mr. PAXTON. We are working with SCA member companies to better understand how their businesses are impacted by the market for rare earth minerals. [See page 30.]

RESPONSES TO QUESTIONS SUBMITTED BY MR. WALTZ

Mr. FANNING. Policymakers throughout the federal government must recognize that many new technologies and innovations are being developed commercially or in the private sector. DOD is not presently set up to harness these technologies quickly and efficiently for government and military use. For many years, AIA has supported legislative proposals to increase use of the Department's commercial acquisition authorities based around the Section 809 Panel recommendations and more recent ideas that would facilitate greater use of commercial acquisition. Beyond this, and perhaps most critically, DOD and Congress should work together with industry to address the length of time it takes to execute a contract, and to bring a program from prototype to Program of Record. The timeline it takes can be an enormous barrier, particularly for small businesses with limited capital.

Thirdly, Congress and DOD must recognize that the current compliance, regulatory, and bureaucratic regimes—in most cases, created with good intentions—often deter commercial or dual-use companies, especially small businesses, from doing business with DOD. Congress, working with industry, should examine existing policies; take stock in what is working and what is not working; and remove duplicative, overly onerous, and/or outdated policies that hinder innovation, impede participation in the DIB and mire the Department in red tape. Policies that should be examined and potentially amended or repealed include: cost accounting standards; the business systems DFARS clause; the DOD weighted profit guideline; data requirements for commercial product for major weapons systems; the "late is late" rule; the only one offer policy; practices for peer reviews; and requirements for external restructuring costs.

AIA looks forward to engaging with the committee more on these recommendations and can provide additional detail. Clearing this underbrush will make it easier for more businesses to participate more robustly in the DIB, will allow both the DOD and the DIB to focus on what really matters, and will streamline how the DIB does business with its primary customer.

U.S. policymakers should also streamline the regulatory and bureaucratic framework governing trade, foreign military sales (FMS), and international security cooperation by implementing clear systems and flexible policies that both incentivize and enhance cooperation while building collective capacity with trusted partners. These systems and policies should enable resiliency in our overall supply chains, draw partners and allies closer together, and establish long-term industrial and economic relationships that allow like-minded nations to deter and respond to shared global threats. AIA has developed and provided recommendations to DOD's FMS Tiger Team, which have also been shared with Congress; in addition, AIA released recommendations specific to the advanced capabilities pillar of the Australia-United Kingdom-United States security pact known as AUKUS. We would welcome further conversations with the committee on these recommendations and will provide additional information as requested.

Finally, one of the strongest signals Congress can send is providing on-time, stable, and sufficient funding through the annual appropriations process—not by defaulting to continuing resolutions. Providing clarity and certainty to both contractors and contracting officials at DOD will allow programs to get started and operate efficiently on the timelines they were intended. [See page 42.]

Mr. NORQUIST. At NDIA, our defense industrial readiness policy goal is straightforward: to ensure our warfighters have the platforms, services, and technologies they need so they never engage in a fair fight against any competitor. We agree with your assessment that it is necessary to find the right balance between incenti-

vizing and investing in innovative new technologies while also maintaining relevant and effective current capabilities.

NDIA and our member companies applaud the significant work Congress has already done to update authorities on the acquisition side. However, there is a lack of alignment between acquisition authorities and the requirements process that needs attention. This alignment will better help the Congress visualize where it should balance risk in the portfolio management between sustaining current capabilities, divesting of current capabilities, and investing in updated capabilities.

This process should begin with the Department of Defense's (DOD) wargames and models, which would assess both near term and future risk. Assessing near term risk informs the need for maintaining current systems, while assessing future risk illuminates where the military services need to modernize. These wargames and models can then inform budget requests and requirements, sending a clear demand signal to industry. The DOD should not lower requirements due to assumptions of what industry is capable of, and instead the Department should signal to industry what is needed based on DOD's analysis. Given time, the defense industrial base (DIB) is capable of increasing production to meet the DOD and our warfighters' needs, but industry first needs a clear and consistent demand signal. Congress can reinforce the Department's demand signal by supporting multi-year contract authorities, which have proven beneficial as DOD and industry work together to maintain, and where appropriate, replenish, current munitions stockpiles. This support would further strengthen the Department's demand signal and provide sufficient predictability to inform industry's long-term investments.

The DOD is currently working to update the Joint Operational Concepts, which will inform new military service and combatant command operating concepts as well as their requirements. While the new Joint Operational Concepts are adjacent to industry concerns, clarity on the requirements coming out of the new operating concepts will help industry know how to utilize its internal research and development (IRAD) dollars to adapt and respond to the needs of the military services and combatant commands more quickly.

Recommendation: NDIA recommends Congress consider the following areas in the FY2024 National Defense Authorization Act (NDAA):

- Support the use of multi-year contracting authorities for acquiring capabilities deemed critical by the Department's analysis.
- Support industry and the DOD to get the balance right by providing clear and consistent guidance on its expectations for how the updated Joint Operational Concepts will inform and instill discipline in the requirements process.
- Direct more coordination between the requirements community and acquisition community. [See page 42.]

Mr. NORQUIST. The U.S. defense industrial base (DIB) resiliency required to sustain the U.S. in great power competition was sacrificed as part of the 1990s peace dividend. The powerhouses of industrial readiness—stable and predictable budgets; an experienced and specialized workforces; diversified and modern infrastructure; manufacturing innovation; and sufficient, including idle, capacity—have all atrophied. Due to the illegal invasion of Ukraine, the opportunity to address the current U.S. munitions inventory and its budgeting and authorities deficiencies has never been timelier.

The military services' munitions requirements are derived from the National Security Strategy (NSS) and the National Defense Strategy (NDS). In the 1990s, the munitions requirements for the military services were tied to operational plans for what would be required for the U.S. to prevail in two major theater wars. Over time, the munitions requirements have shifted with the strategies to what is required to prevail in one major theater war while maintaining effective deterrence in a second theater until resources can be shifted. In addition, over the last twenty years, the U.S. has shifted from thinking about major theater war operations to low-to-medium intensity conflicts, which has de-prioritized certain categories of munitions such as artillery and long-range fires.

In addition to the shifts in strategy and focus, munitions have often been the bill payers for higher priorities in the Department of Defense (DOD) budgeting process. While the military services and combatant commands reference requirements-based processes, the munitions requirements in the annual budget process are often softened from "what is required" to "what we can afford." As an example, to save money, the military services have gotten into a habit of buying production capacity to meet training requirements rather than major theater of war requirements. In addition, there can be a tendency to prioritize a wider breadth and shallower depth of capability rather than completing the depth of any one capability. The assumption has been that production can be accelerated in the event of conflict.

Recommendations: NDIA recommends the following oversight and legislative lines of effort:

- *Oversight on Total Munitions Requirement.* To effectively evaluate ramp-up production, instead of focusing solely on the number of years of production required, the military services should provide the committees with the total inventory requirement for the operational plans for different theaters. This will also better provide the committee with visibility into how the transfer of munitions to Ukraine are impacting the current and near-term readiness of the military services.
- *Competition for Components.* Ramping-up production of munitions will exacerbate the competition for component parts, such as electronics and circuit cards, with the civilian sector. Evaluating how DOD is mapping those critical components and identifying industrial policy mechanisms, including contracting mechanisms to ensure access to these components, is a viable area of oversight.
- *Retention of Capability Authority.* NDIA recommends modifying 10 USC 2535, Defense Industrial Reserve, to include language that defines retention of capability to produce munitions production equipment for surge capability. The modification should also require the military services to include provisions for surge capacity in government contracts, which would require contractors to maintain the ability to quickly ramp-up production. [See page 43.]

Mr. PAXTON. For SCA and the U.S. shipyard industry, we work to support efforts to build, maintain and modernize fleets for the Navy, Coast Guard, MARAD and other government agencies, as well as the nation's commercial markets. Industry responds to demand signals—therefore ensuring a demand signal that may prove militarily useful will help right-size industry incentives. Additionally, the government customer benefits from a strong domestic market and in recent years that has been challenged.

The domestic commercial market is sustained by the Jones Act, which provides market certainty and stability. This law helps to ensure the existence of a domestic shipbuilding and ship repair industrial base. The Jones Act sustains a domestic market for which carriers, operators and shipyards vigorously compete. Those shipyards cut their teeth on increasingly complex vessels, especially for the offshore energy markets, and that ultimately benefits the government customer and the tax payer because those skills can be leveraged accordingly.

A 2017 decision by the Customs and Border Protection (CBP) has allowed [certain] foreign-built, foreign-crewed and foreign-owned offshore supply vessels to operate in violation of the Jones Act. This has resulted in the cancelation of numerous construction contracts to build new "Made in the U.S.A." vessels because of the uncertainty introduced by executive-fiat and in contravention of Congressional intent. Not only does the cancellation of contracts have an immediate dampening impact to the domestic industry, but it initiates a vicious cycle wherein future opportunities could also be reconsidered or rescinded. The cancellation of contracts also dampens the domestic industry's ability to invest in their workforce and modernize their facilities to make them more safe and efficient.

I raise this issue as an example of how a decision by an agency to not enforce the Jones Act can have an adverse impact on commercial shipbuilding that reverberates throughout the entire shipyard industrial base, further raising costs and destabilizing its ability to support national defense requirements. We encourage the Congress to consider identifying and closing loopholes to the Jones Act that currently exist by providing clarity on matters related to visa issues and heavy lift operations that are integral to success and viability this critical commercial market. [See page 42.]

Mr. PAXTON. The SCA would be supportive of efforts to ensure there are additional opportunities to grow the Jones Act fleet. Previously, SCA has endorsed the Energizing American Shipbuilding Act (EASA) that would require a certain amount of domestic energy cargoes be transported on U.S. built ships for the international market. SCA believes legislation like EASA would incentivize the construction of militarily-useful vessels for auxiliary purposes. Additionally, SCA is supportive of the Committee's FY23 authorization language that called for the Maritime Administration, utilizing the model executed to purchase 5 new National Security Multi-Mission Vessels (NSMV), to begin the design concept of a Roll-On/Roll-Off Containership to replenish the National Defense Reserve Fleet (NDRF) and is requesting funding to support that effort in FY24. [See page 43.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

FEBRUARY 8, 2023

QUESTIONS SUBMITTED BY MR. WILSON

Mr. WILSON. China as the "pacing threat," is undertaking an unprecedented campaign of military modernization, underscored by significant investment in its armed forces and national security infrastructure through their own defense industrial base.

What hard problems do we need to solve to ensure that our Defense Industrial Base maintains its competitive edge against China?

Mr. FANNING. The U.S. has an absolute advantage in its network of partners and allies. Much like the multi-national government response to Russia's invasion of Ukraine, the integration of close U.S. partners into our industrial base and supply chains will be the key to ensure our competitive edge in any future conflict.

We must be realistic about what China is investing in its military, and also make strong investments of our own to meet the National Defense Strategy and address inflation. The Pentagon said last year that China's military budget "nearly doubled" from 2012 to 2021. Beijing recently stated that this year alone China will increase its defense budget by 7.2% (China's annual inflation rate is 1.0% percent according to the National Bureau of Statistics of China). By comparison, President Biden's proposed FY24 defense budget is a 3.2% year-over-year increase (the United States' annual inflation rate is 6.4% according to the U.S. Bureau of Labor Statistics).

China's historic military modernization is being buffeted by equally aggressive investments in innovation. Between 2000 and 2019, China's share of global research and development (R&D) rose nearly 488 percent, from 4.9 percent to 23.9 percent. At the same time, China extended its super deduction for R&D expenses for manufacturing companies to an extra 100 percent of eligible R&D expenses in addition to actual expenses incurred—while a recent U.S. tax change reduced that deduction for American companies. That means for every $100 spent on innovation, Chinese companies can deduct $200, 10 times more than American companies in a similar situation.

The United States has clear opportunities to right the ship. Federal investment in national defense must keep pace with the threats we face. Next, Congress must restore competitive R&D tax amortization rules to strengthen our global R&D posture relative to China and other nations. Lastly, on the international stage, governments are working closely, but our democratic industrial bases need the equivalent policy and regulatory runway to excel so that overall integrated deterrence is achieved. To this end, it is important the U.S. ease regulatory burdens that inhibit closer cooperation with allies and trusted partners. Easing technology transfer requirements and promoting the seamless integration of U.S. and allied industrial bases are key to out innovating and deterring our adversaries.

Mr. WILSON. Supporting allies and partners through Foreign Military Sales is a function only secured via the DOD acquisitions system, which a standard contract takes on average nearly 18 months to award. As tensions with China grow, the war in Ukraine continues, and support to other allies and partners remain; what can the DOD do to improve the overall Foreign Military Sales process to deliver the best capability to partners on an accelerated timeline especially for those in a current conflict?

Mr. FANNING. The U.S. needs a modernized, strategic Foreign Military Sales (FMS) system capable of addressing the current and future threat environment—one built to deliver critical capabilities to international partners as quickly and concurrently as the U.S. armed forces. The DOD must act with a sense of urgency and fully commit itself to using FMS as a primary foreign policy tool to support U.S. interests, warfighters, and partners and allies. FMS must be integrated into the larger warfighting construct of the Combatant Commanders and the acquisition requirements of the military departments. This commitment to FMS must come from the highest levels in OSD and include the service secretaries and the supporting

military department bureaucracy that is largely responsible for executing the process.

Mr. WILSON. China as the "pacing threat," is undertaking an unprecedented campaign of military modernization, underscored by significant investment in its armed forces and national security infrastructure through their own defense industrial base.

What hard problems do we need to solve to ensure that our Defense Industrial Base maintains its competitive edge against China?

Mr. NORQUIST. The 2022 National Security Strategy (NSS) states that "the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next." In this context, the U.S., along with its Allies and partners, must be prepared to prevail in the return of great power competition.

Unfortunately, as NDIA's Vital Signs 2023 notes, the U.S. defense industrial base (DIB) resiliency required to sustain the U.S. in great power conflict was sacrificed as part of the 1990s peace dividend. The powerhouses of industrial readiness—stable and predictable budgets; an experienced and specialized workforce; diversified and modern infrastructure; manufacturing innovation; and sufficient, including idle, capacity—have all atrophied under the combined transition to a services-based economy with a premium on just-in-time commercial supply chains.

NDIA member companies are emphasizing that the federal acquisition process is growing more—not less—cumbersome; the lack of budget stability is breaking companies and causing significant workforce uncertainty; and the challenges of finding and retaining talent are impacting even our most strategic defense programs. The current inflation level is as a cross-cutting issue impacting both the acquisition process and workforce management. The federal government must prioritize removing policies, regulations, and authorities that are strangling the DIB and make significant, sustained, and predictable financial investments to rebuild the DIB's strategic endurance and resilience.

A high-end fight with a peer adversary will require the U.S. to have both technological competitive advantages and significantly expanded industrial capacity. Therefore, to support the U.S. DIB, NDIA recommends Congress solve the following issue areas:

1. Provide timely, consistent, and sufficient budgets.
2. Increase surge production capacity.
3. Increase incentives for research and development funding.
4. Increase the incentives for small, medium, and non-traditional companies to participate in the defense industrial base.

1. Provide Timely, Consistent, and Sufficient Budgets.

From 1985 to 2021, national defense spending dropped from 5.8% to 3.2% of U.S. GDP, and the Congressional Budget Office projects a further decline of 2.7% by 2032. In addition, in 13 of the last 14 years, the federal government has operated under a continuing resolution (CR) for part of the year, preventing new starts essential for modernization and delaying increased production rates, multi-year procurement authorities, and advanced procurement funding essential for building capacity. The U.S. must change its defense resourcing strategy to support an industrial footprint required to prevail in great power competition.

Recommendation: NDIA strongly endorses on-time passage of the FY2024 National Defense Authorization Act (NDAA) and FY2024 Defense Appropriations, with a topline budget for the Department of Defense (DOD) of 3–4 percent real growth to meet the requirements identified in the National Defense Strategy (NDS) and to address the ongoing impact of inflation.

2. Increase Surge Production Capacity.

Russia's illegal invasion of Ukraine highlighted the brittle posture of the U.S. DIB, especially its atrophied surge capacity and the ability to ramp-up production.

Recommendation: NDIA recommends modifying 10 USC 2535, *Defense Industrial Reserve,* to include language that defines retention of capability to produce munitions production equipment for surge capability. This change should also require the military services to include provisions for surge capacity in government contracts, which would require contractors to maintain the ability to quickly ramp-up production. These provisions would help ensure that the U.S. DIB can rapidly respond to emerging threats and maintain a competitive edge against China.

3. Increase Incentives for Research and Development Funding.

To maintain its technological competitive advantage, the U.S. must prioritize continued and increased investment in research and development (R&D). Congress can play a critical role in this area by providing sustained funding for R&D, incentivizing private sector investment, and supporting public-private partnerships to support emerging technologies.

Recommendation: Congress should end the five-year R&D tax amortization introduced in the *Tax Cuts and Jobs Act of 2017* (TCJA), which went into effect in January 2022. This provision ended the 70-year tax code permitting companies to write-off qualifying R&D expenditures annually. The TCJA R&D tax amortization means that companies investing in R&D are only allowed to make deductions on 20% of qualifying R&D expenses per year. This amortization severely undermines U.S. defense companies' ability to fund vital R&D projects. Conversely, the People's Republic of China (PRC) utilizes a super deduction of qualifying R&D expenses for companies.

4. Increase the incentives for small, medium, and non-traditional companies to participate in the defense industrial base.

In the last five years, the defense ecosystem has lost 17,045 companies, and DOD estimates the number of small businesses participating in the DIB has declined by over 40% in the last decade. These net numbers also hide other vulnerabilities to the readiness and reconstitution of industry. For example, one key issue is the over-reliance of sole source suppliers, including from foreign sources.

Therefore, Congress should focus on measures that streamline acquisition and reduce regulatory barriers for small businesses and non-traditional defense companies.

Recommendation: NDIA recommends that Congress support legislation to:

- Streamline acquisition to shorten timelines from program initiation to contract award.
- Authorize and appropriate funding for the DOD's Rapid Innovation Fund, which is meant to help small businesses bridge the "Valley of Death" but has not been funded since 2019.
- Build upon previous improvements to the process of adjudicating personnel security clearances to expand and improve reciprocity for personnel clearances and to streamline the process for facility clearance processes to support small companies and emerging technology companies.

Mr. WILSON. China as the "pacing threat," is undertaking an unprecedented campaign of military modernization, underscored by significant investment in its armed forces and national security infrastructure through their own defense industrial base.

What hard problems do we need to solve to ensure that our Defense Industrial Base maintains its competitive edge against China?

Mr. PAXTON. To grow and develop the next generation of shipyard workers, U.S. shipyards require market stability across sectors so that companies can make the required investment in their people and facilities to meet demand to counter any near-peer competition.

SCA would encourage the Congress to continue to support stable, realistic and predictable budgets for the U.S. Navy and Coast Guard and we appreciate the work this committee has done to add authorities and dollars to critical accounts to see these goals realized. While we recognize it is hard to accurately forecast needs 30 years into the future, there must at least be stability and fidelity in the FYDP and the 10-year horizon otherwise there will be significant disruption to the industrial base. Additionally, we encourage this committee and the Congress to continue to hold the services to account through effective oversight.

Mr. WILSON. Your written statement for this hearing describes that the United States Navy has provided mixed messages over the last five years on the policy directed from the FY 2018 NDAA that the United States Navy will maintain a force of 355 ships.

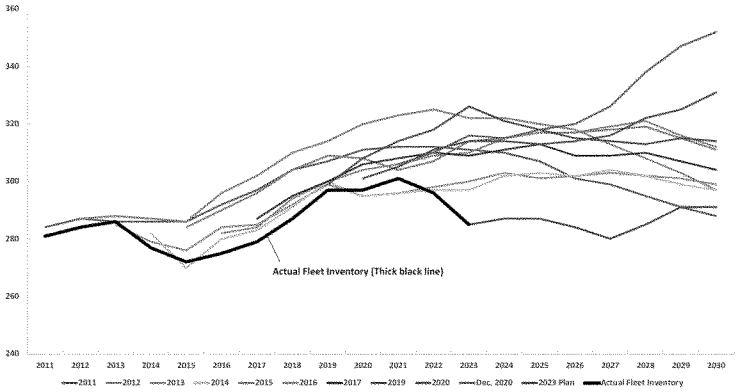
What specificity and clarity does the Shipbuilders Council of America need from the United States Navy to ensure that the industry can accomplish the 355-ship objective?

Mr. PAXTON. There needs to be fidelity in the plans being put forward from the Navy. When programs are truncated or pushed to the right, that introduces volatility to the industrial base. Additionally, retiring ships early results in boom-and-bust cycle on the ship repair side that can make it extremely difficult to retain the critical workforce needed.

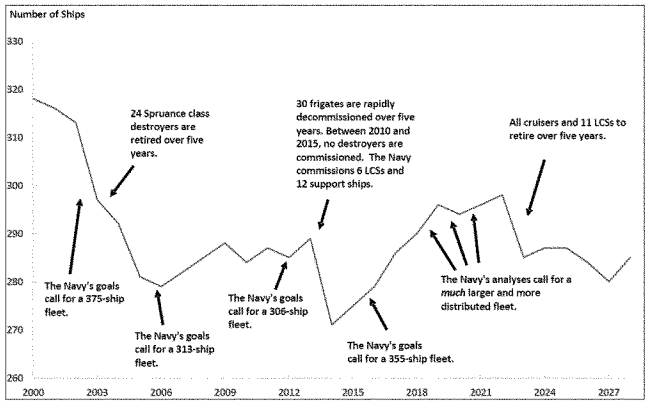
In addition to providing the required products required to build and maintain our ships, shipyards and suppliers alike must also meet certain onerous accounting and cybersecurity requirements to be a part of our industrial base. Industry understands why those rules exist and are not resisting them. However, when programs get truncated or pushed further out, the capital expenditures required to maintain status in the defense industrial base is significant and can inhibit companies from making the required investments in potential future programs.

The Navy needs to understand the strain that this volatility has on the industrial base and how it impacts how businesses make decisions. Recent charts from CBO best demonstrate this volatility (see below).

The Navy's Projections of Its Fleet Under the Past 11 Shipbuilding Plans, Compared With Actual Inventories



Early Ship Retirements Have Undermined the Navy's Goals to Increase the Size of Its Fleet



QUESTIONS SUBMITTED BY MR. GALLAGHER

Mr. GALLAGHER. What changes to ITAR, the DPA, or other DOD authorities would build resiliency in our own munitions and critical defense stockpiles with the industrial might of allies in AUKUS, Five Eyes, and others, particularly in the Indo-Pacific region where cutting down resupply time would be critical? And how might this help lines stay open?

Mr. FANNING. Our industry continues to be supportive of incorporating allies and partners in our supply chains and applauds Congress' recent addition of New Zealand to the National Technology and Industrial Base (NTIB). The NTIB is a reflection that the U.S. defense and industrial base is a global one and that the U.S. must integrate both international and domestic sourcing to maintain our competitive edge. Therefore, recognizing Australia, the UK, Canada, and New Zealand as members of the defense industrial base cannot be a symbolic gesture, Congress must provide the regulatory framework and resources to incentivize deeper integration of our industrial base with NTIB partners and bolster capacity where the U.S. is experi-

encing gaps. Investment in research and defense in NTIB nations, implementing modern technology transfer and acquisition regulations and policies, and examining how we may integrate NTIB countries into the DPA are integral to operationalizing the NTIB and other security pacts agreements such as AUKUS.

Mr. GALLAGHER. What changes to ITAR, the DPA, or other DOD authorities would build resiliency in our own munitions and critical defense stockpiles with the industrial might of allies in AUKUS, Five Eyes, and others, particularly in the Indo-Pacific region where cutting down resupply time would be critical? And how might this help lines stay open?

Mr. NORQUIST. In the return of great power competition, the United States has two strategic advantages: our unparalleled network of Allies and partners and our innovative defense industrial base (DIB). NDIA and our member companies strongly support changes to International Traffic in Arms Regulations (ITAR), the Defense Production Act (DPA), and other Department of Defense (DOD) authorities that would build interoperability with our Allies and partners and re-build resiliency in U.S. munitions stockpiles.

NDIA recommends changes to ITAR to facilitate greater sharing of defense-related technology and information between the U.S. and our Allies. Currently, the U.S. defense export regulations process treats our closest Allies in the same way as newly emerging Allies. Overly burdensome U.S. regulations are disincentivizing our Allies doing business with U.S. defense companies. The recommended changes to ITAR are to make it easier for U.S. suppliers, especially small companies and middle-tier suppliers, to sell their parts and components to our most trusted Allies.

These recommendations include:

- Streamlining the export licensing process for certain technologies.
- Creating a more flexible framework for technology transfer to trusted partners.

Additionally, to meet the policy goal of increasing interoperability, any changes to ITAR need to enable our most trusted Allies and partners to approve the export of their own capabilities that utilize U.S. products and parts to other Allied countries.

NDIA recommends changes to DPA to enable the U.S. to invest in critical defense infrastructure and technology in partner countries, particularly in the Indo-Pacific region. This includes investing in joint manufacturing facilities for critical defense components and stockpiles, as well as investing in research and development (R&D) to identify new and innovative solutions to shared defense challenges. Using DPA in this way would support Pillar II of the AUKUS agreement, which focuses on furthering trilateral technological development across advanced capabilities to promote security and stability in the Indo-Pacific.

Finally, NDIA recommends leveraging existing DOD authorities, such as the Foreign Military Sales (FMS) program, to facilitate greater collaboration and interoperability in critical defense infrastructure among our Allies. NDIA and our member companies are encouraged by the work being done by the DOD's FMS Tiger Team in evaluating the current FMS process, and we applaud Congress' cross-committee interest in modernizing the FMS system so that it is strategic, flexible, and able to quickly deliver critical capabilities to our Allies and partners. We especially appreciate the emphasis both the Department and Congress have put on involving industry in the FMS modernization process.

To build upon the progress already made on FMS modernization, NDIA recommends that Congress—rather than introduce new authorities—focus instead on the following issues:

- Collaborate with industry to provide oversight of the FMS Tiger Team's 85 recommendations in order to prioritize the most important proposals.
- Prioritize our closest Allies and partners when they submit an FMS application rather than processing applications as they are received.
- Invest in an increased and expertly trained FMS contracting workforce.
- Implement a start-to-finish tracking system for FMS contracts to support our allies and partners throughout the Letter of Request (LOR), Letter of Offer and Acceptance (LOA), and acquisition process.

NDIA and our sister associations, the Aerospace Industrial Association (AIA) and the Professional Services Council (PSC), have compiled feedback on the FMS process from member companies, and we would welcome the opportunity to present this information to the House Armed Services Committee at a time that is convenient for you. Additionally, NDIA is willing to convene a roundtable discussion where subject matter experts (SMEs) could share their perspective on the overall U.S. export control regulations environment with Congress.

Overall, these changes could help build resiliency in our own munitions and critical defense stockpiles by leveraging the industrial might of our Allies, helping to ensure that our stockpiles are more resilient and that supply lines remain open,

even in times of crisis. By facilitating greater collaboration and investment in shared defense infrastructure and technology, we can help ensure that we are better prepared to address emerging threats and maintain a competitive edge over our adversaries.

Mr. GALLAGHER. Mr. Norquist, the NDIA Vital Signs survey stated, "The federal acquisition process is growing more, not less, cumbersome." Would normalizing and expanding the use of Other Transaction Authorities stimulate innovation and deliver to the hands of the warfighter more rapidly by allowing for more flexible defense acquisitions pathways?

Mr. NORQUIST. Yes. In *Vital Signs 2023,* 30% of the participating NDIA member companies cited the burden of the acquisition process and paperwork as the most pressing issue facing the U.S. defense industrial base (DIB).

NDIA strongly endorses expanding the use of Other Transaction Authorities (OTAs) as part of the solution of addressing this challenge. The power of OTAs is their flexibility. Normalizing or expanding the use of OTAs should be encouraged, as well as training the acquisition workforce to properly use OTAs to maximize opportunity to streamline acquisition without the insertion of traditional contract clauses. NDIA supported Section 824 of the Fiscal Year 2022 National Defense Authorization Act (NDAA), which directed the Department of Defense (DOD) to consider a number of opportunities to expand the use of OTAs, and our member companies were encouraged by DOD's assessment that it did not see anything in 10 USC 4022 that would prohibit the expanded use of OTAs.

10 USC 4022 provides authority to DOD to use OTAs if one of the following is met:

1) There is at least one non-traditional defense contractor.
2) There is significant participation by small businesses or non-traditional defense contractors (NDC).
3) At least one third of the total cost is not funded by the federal government.
4) The senior procurement executive provides a waiver.

Aside from these requirements, OTAs are free of other statutory or regulatory burdens. This allows for greater collaboration between industry, academia, and government during the acquisition cycle. Importantly, the U.S. government can collaborate with industry on requirements as well as potential solutions. In addition, industry is compelled by the requirements of 10 USC 4022 to collaborate with each other.

NDIA notes two areas which require congressional support to keep the spirit of current and expanded use of OTAs intact:

1) As OTAs are used more often, Congress should avoid requiring the inclusion of certain contract clauses that would undermine the value of OTAs' flexibility and open the door to overregulation.
2) NDIA member companies have raised concerns that the DOD acquisition workforce often reverts to the more familiar, and perceived safer, contract clauses from traditional FAR and DFARs-based contracts. This significantly undermines the value of OTAs, as their power lies in their flexibility. While the use of OTAs is not appropriate for all situations, as the appropriate use of OTAs expands, it is important the authority is used correctly.

Recommendation: NDIA strongly endorses action in the FY2024 National Defense Authorization Act (NDAA) to address the role of the acquisition workforce with respect to OTAs. Specifically:

- Authorize funding to train the acquisition workforce on responsible but creative ways to exercise their OTA authorities appropriately and effectively. This training should especially discourage the acquisition workforce from reinserting traditional contract clauses onto OTA contracts when they are not necessary.

Mr. GALLAGHER. What changes to ITAR, the DPA, or other DOD authorities would build resiliency in our own munitions and critical defense stockpiles with the industrial might of allies in AUKUS, Five Eyes, and others, particularly in the Indo-Pacific region where cutting down resupply time would be critical? And how might this help lines stay open?

Mr. PAXTON. At present, SCA does not have positions on proposed changes to DOD authorities to address this particular issue. However, we know that alternative funding strategies, including advanced procurement, block buys and multi-year funding can help make the requisite investments to ensure that there are sufficient orders of parts and supplies to ensure on time delivery of Navy assets.

Mr. GALLAGHER. How would the Armed Services utilizing block buys for systems like Army Watercraft and potential light amphibs or LSMs (Medium Landing Ship) result in cost-savings and expeditiously delivered capabilities to the services/Pacific? And can you touch on the damage to industry and delivery when the services con-

tinue to pile on and alter requirements to ship designs—and what can be done about this in your view?

Mr. PAXTON. While SCA does not advocate for one program over another, we can speak to the benefits we know exist when acquisition strategies that enhance cost reduction are used in ship procurement.

Authorizing alternative funding approaches such as advanced procurement, incremental funding and block buy contracting could increase stability in Navy and Coast Guard shipbuilding plans and increase the number of ships that could be built for the same amount of procurement funding.

Through the use of advanced procurement in shipbuilding, Congress can define the full cost of a ship in an initial appropriations act but defer some of the appropriation to future years. For the shipbuilding industry and the supplier base, this creates an early financial commitment that enhances job security and encourages capital investment. Additionally, advance procurement can reduce the total construction cost of a ship through improved sequencing or year-to-year balancing of shipyard construction work and the purchase of batch items that can be manufactured in an efficient and economic manner.

Authorization of incremental funding, where cost is divided into two or more annual portions, allows for expensive items, such as large Navy ships, to be procured in a given year while avoiding or mitigating budget "spikes" and major fluctuations in year-to-year budget totals. While this authorization also requires appropriations support, industry believes that incremental funding would also allow construction to start on a larger number of ships in a given year so as to achieve better production economies. And an added benefit often not considered is a reduction in the amount of unobligated balances associated with DOD procurement programs.

Industry appreciates the block buys authorized in the FY23 NDAA. Block buy contracting permits the Department of Defense to use a single contract for more than one year's worth of procurement of a given kind of ship without having to exercise contract options for each year after the first year. Purchasing ships through block buy contracting enables shipyards to leverage "hot" production lines—those assembling current ships—and streamline the acquisition process for these vessels.

QUESTIONS SUBMITTED BY MR. BERGMAN

Mr. BERGMAN. Are we noticing a decline in small businesses that is impacting a specific industry harder than another? Are we losing more small businesses in aerospace vs. shipyards? And if so, what policies can Congress implement to incentivize reversing that trend?

Mr. FANNING. We are seeing an industry-wide decline in small business participation in the defense industrial base (DIB), as noted in a GAO report that found over the past decade small business in the DIB shrunk over 40 percent. The data shows that if we continue along the same trend, we could lose an additional 15,000 suppliers over the next 10 years. Companies seeking to enter the DIB must contend with a multitude of laws and regulations that are cost- and time-prohibitive, disrupt established supply chains, and require implementation of new systems, processes, and procedures. For example, additional compliance requirements, such as Cybersecurity Maturity Model Certification (CMMC), will further stress an already vulnerable supply chain, and more companies will exit the DIB due to the real costs associated. Congress and the DOD must do more to lower the costs of compliance and offer assistance to small businesses that are critical to the DIB.

Mr. BERGMAN. Supply chains for major defense programs have millions of components from thousands of suppliers. What degree of visibility into defense supply chains is possible? How can Congress help the DOD and the defense industry work together to mitigate supply chain risks it cannot see?

Mr. FANNING. There are two ways to approach the defense industrial base's (DIB) supply chain visibility: large-scale studies and analyses that view the DIB as a whole; and routine, ongoing observation that identifies or predicts specific problems in real time. There has been no shortage of routine reporting and macro-level studies of the DIB over the past 20 years; scores or even hundreds by some estimates. Major efforts include the Defense Industrial Base Capabilities Study (DIBCS), a periodic study that began in 2004; the Sector-by-Sector, Tier-by-Tier (S2T2) study of 2012–2014; and the major analyses and reports generated by both the Trump (E.O. 13806) and Biden (E.O. 14017) Administrations. Congress requires an annual Industrial Capabilities Report, produced by DOD Industrial Policy, in the Office of the Undersecretary of Defense for Acquisition and Sustainment (USD A&S); those reports in turn list all other supply chain reports done each year, by DCMA, the armed services, and others. At this point, there is little that is not known about

what has happened, or can happen, when supply chains are weak or disrupted, and much has been learned from the experiences of the pandemic response and surge in demand relate to Ukraine; the challenge now is to identify effective tools and remedies.

At the operational level, the DIB's supply chains have many links, and their transactions are often obscured by privity of contract between supplier and buyer. However, the private sector has responded to recent supply chain turbulence by developing processes and tools that better illuminate the supply chain. These processes and tools provide a view of the supplier's financial posture, foundational and specialty manufacturing processes, and the provenance of the piece parts, subassemblies, and materials used in these processes. AIA has received demonstrations of tools that provide this data. Especially if supported by artificial intelligence (AI), these elements can be melded with other available market, program, and product information to better identify, anticipate and mitigate risks.

Our industry is actively coordinating with the U.S. government on its efforts to build more resilient and secure supply chains and engage in supply chain illumination. Successive administrations, including the Biden Administration, as well as Congress, have stressed the importance of a building more resiliency in U.S. supply chains, have already implemented regulatory regimes that promote strategic supply chain diversification, and encouraged U.S. industry to source from our closest allies and partners. Congress and DOD can further work together to mitigate unseen risk by building cushion, or margin, into supply chains. Congress and the Department of Defense (DOD) can and should provide incentives to source domestically, produce/refine and assemble domestically, carry inventory to be used in the event of supply chain disruption or interdiction, and ensure second or more sources of supply are available along with excess production capacity to facilitate production ramp-up or delivery acceleration orders. Additionally, DOD could buy raw materials in bulk and provide these materials 'at cost' to eliminate competition among suppliers for foreign source material that drives up costs and can leave some suppliers without materials. Congress can incentivize raw material producers (the miners of the raw ores that will ultimately be refined into pliable materials). Finally, Congress can incentivize companies that develop alternative products and processes that meet (or exceed) the requirements of the scarce raw material resources.

Internationally, we can and must also look to our allies and partners and work with them as we collectively face supply chain challenges. Notably, critical materials supply chain mitigation is an area where allies and partners can play a key role, both as a provider of critical materials as well as a source of refining for eventual import into the United States. Both the Congress and the Administration have identified partners and allies as critical to our supply chain security and we must carefully balance leveraging those partners and allies against the domestic sourcing provisions found in various congressional authorities or those defined under Executive Order 14017.

Mr. BERGMAN. Are we noticing a decline in small businesses that is impacting a specific industry harder than another? Are we losing more small businesses in aerospace vs. shipyards? And if so, what policies can Congress implement to incentivize reversing that trend?

Mr. NORQUIST. Small businesses in the U.S. defense industrial base (DIB) are the foundation of NDIA's membership, and we are honored to ensure their voice and perspective is front and center of all our educational engagements with Congress and the Department of Defense (DOD).

NDIA's *Vital Signs 2023* highlights that "in the last five years, the defense ecosystem has lost a net 17,045 companies and the Department of Defense estimates the number of small businesses participating in the defense industrial base has declined by over 40% in the last decade." Furthermore, the NDIA Small Business Division reports it is noticing a trend of high-technology innovators exiting the U.S. DIB and a struggle to encourage new entrants as well.

Additionally, throughout COVID, small businesses in the aerospace industry struggled as their opportunities for both defense and commercial contracts atrophied. Companies of all sizes across the aerospace industry struggled; however, small aerospace companies faced more immediate and drastic consequences. Like small businesses across the country in every sector, small businesses in the aerospace industry did not have the financial reserves to sustain themselves throughout a protracted shutdown of industry.

Small businesses in the shipyard industry faced similar issues, but shipyards did not face a total loss of the commercial sector the way that the aerospace industry did. Additionally, small businesses in the shipyard industry have benefited from a focused set of legislative and policy-related programs to specifically develop its work-

force. NDIA and our member companies fully support this approach and thank Congress for the ongoing focus in this area.

At the same time, it is important to recognize that while COVID severely impacted these sectors, COVID is not the root cause of consolidation within the DIB. In 2021, the Government Accountability Office (GAO) reported that from 2011 to 2020 the number of DOD contracts awarded to small businesses decreased by 43%. This is an issue that long pre-dates COVID.

The cause of shrinkage is the DOD business model. Currently, the DOD does not actively work to retain companies in the DIB. In fact, it often does the opposite for small businesses and non-traditional defense companies (NDCs). Small businesses and NDCs often experience the frustration of delivering innovative solutions to the DOD, only to find that in the next contracting cycle the Department has chosen to bring that function or technology development effort "in house." Despite the Department's acknowledgement that retention is a major issue facing the DIB, this business model actively pushes companies out of the DIB and weakens the resilience of the industrial base.

Recommendation:

- Congress should require the Department to provide it with justification when choosing a government entity to deliver a capability, rather than an industry partner that is capable of delivering it, especially if the private sector provided it in the past.

In addition, one of the challenges associated with disruptive innovation is that is inherently disruptive by nature. The introduction of new technologies or approaches often changes the status quo and requires overcoming inertia to implement. Furthermore, it can alter the value proposition for established business relationships, necessitating incentives to encourage long-term behavioral changes.

Recommendations:

- Congress should develop both financial and career incentives for government program managers and contracting officers who prioritize small business contracts when appropriate, with strong top-down leadership and smooth execution being crucial for successful implementation.
- Congress should standardize and improve training for the acquisition workforce on small business programs, policies, and initiatives so that these individuals can look for opportunities for small businesses set-aside and multiple award contracts from the early stages of the acquisition process.

Finally, the core of the discussion of reducing barriers to entry and retaining small businesses already working within the DIB needs to focus on innovation and rewarding the small businesses which bring innovation to the DIB. NDIA and our member companies are encouraged by the work currently being done by DOD's Office of Small Business Programs (OSBP) on this issue. NDIA would recommend that Congress enthusiastically support these efforts, especially the push to make the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (SBTT) programs permanent. SBIR and STTR are invaluable programs that encourage small businesses to engage in federal R&D with the potential for commercialization. It is estimated that in fiscal year 2020, the SBIR and STTR programs resulted in nearly $3.9 billion in funding for small high-technology businesses, and these programs have been consistently instrumental in bringing innovative capabilities and solutions to the DOD. However, last year SBIR and STTR almost expired. The loss of these programs would be detrimental to the DIB and U.S. national security.

Recommendation:

- Congress should make both the SBIR and STTR programs permanent in the FY2024 National Defense Authorization Act (NDAA).

Mr. BERGMAN. Supply chains for major defense programs have millions of components from thousands of suppliers. What degree of visibility into defense supply chains is possible? How can Congress help the DOD and the defense industry work together to mitigate supply chain risks it cannot see?

Mr. NORQUIST. NDIA member companies share the same objective as the Department of Defense (DOD): to ensure resilient and secure supply chains of critical components and parts. There is a mutual desire to mitigate business and operational risks. Ideally, policy discussions in this area will remain an open dialogue between the commercial sector and the government. To avoid unintended consequences, Congress should resist pressure to enact top-down mandates and instead insist upon increased collaboration between DOD, industry, and other agencies.

Proactive commercial companies are already achieving significant visibility into their supply chains. They deem this visibility necessary for their own unique risk management purposes, and they often have four or more tiers of visibility for critical parts. Currently, their visibility is primarily focused on assuring access and avail-

ability of parts. The processes for illuminating the trust and assurance of suppliers, as well as product integrity, are not yet as mature.

However, DOD has unique challenges to consider beyond the current efforts of commercial companies. While commercial companies generally use a single enterprise resource planning (ERP) system, DOD's level of control is limited, as portfolio asset and demand data are dispersed across many different systems and owners. To address this challenge, the DOD should run a risk assessment and prioritize what parts, services, and capabilities need to be tracked throughout the supply chain. This would ensure that the DOD finds balance between security and cost when mitigating supply chain risks.

Additionally, the U.S. government's goal of ensuring national and economic security supply chain assurance is much wider than the goal of any single company. Therefore, the government needs additional unique illumination capabilities to aggregate cross-industry parts and materials criticality information. Over the past several years, customized DOD supply chain risk management (SCRM) tools have been evolving quickly, but there is still significant development work that needs to occur regarding their accuracy before the government should make a final decision regarding these customized tools.

For more perspectives on the gap between commercial state-of-the-art practice and the U.S. government and DOD's current capabilities, NDIA recommends consulting with government employees who have implemented, or are currently implementing, supply chain visibility solutions, such as those involved with the Food and Drug Administration (FDA), the Navy's Electronics Authority, and DOD's Exiger and Interos implementations. For example, DOD must be able to employ many different approaches to gather supply chain risk information, beyond commercially available SCRM software solutions, such as requests for bill of materials (BOM) information and SCRM DFAR flow-downs.

At the same time, because most of the DOD supply chain is comprised of commercial suppliers who sell dual-use products to both government and other industries, Congress can help DOD now by helping the Department to take advantage of commercial best practices.

NDIA recommends that Congress support legislation that:

- Requires DOD to complete a comprehensive risk assessment to prioritize what parts, services, and capabilities need to be tracked throughout the supply chain in an effort to balance cost and supply chain resilience.
- Requires DOD and other agencies evaluate commercially available SCRM tools and marketplaces before deciding to invest in internally developing SCRM capabilities.
- Requires DOD and other agencies evaluate readily available commercial-off-the-shelf (COTS) parts and solutions before deciding to invest in customized solutions.
- Requires programs to implement measurable SCRM strategies during acquisition processes and encourages standardized SCRM terminology and practices across agencies.
- Helps DOD set up supplier agreements for SCRM information-sharing and SCRM services that address suppliers' concerns, including adding hold-harmless clauses for information-sharing and protecting their intellectual property. Furthermore, DOD should refrain from cutting them out by going around their suppliers.

Additionally, Congress can help by enabling DOD to invest in new courses of action (COAs) to address foreseeable types of risks, such as a "rip-and-replace" fund to remedy newly discovered risks like Huawei product, and long-term sustainment service programs, just like commercial companies, to avoid microelectronics obsolescence.

Mr. BERGMAN. Are we noticing a decline in small businesses that is impacting a specific industry harder than another? Are we losing more small businesses in aerospace vs. shipyards? And if so, what policies can Congress implement to incentivize reversing that trend?

Mr. PAXTON. This question would be better directed to the other co-panelists who can better speak to the overall impact on small businesses across the defense industrial base.

Mr. BERGMAN. Supply chains for major defense programs have millions of components from thousands of suppliers. What degree of visibility into defense supply chains is possible? How can Congress help the DOD and the defense industry work together to mitigate supply chain risks it cannot see?

Mr. PAXTON. SCA does not have a stated position on this issue. However, we know that this is an extremely complex challenge and is rightfully concerning to the Congress. We believe this issue will be best worked through in partnership with our

government customers to strike the right balance between delivering advanced, quality products and mitigating risk.

QUESTION SUBMITTED BY MR. JOHNSON

Mr. JOHNSON. Can you tell me about the impact inflation is having on your shipyards, especially the smaller ones?

Mr. PAXTON. Unprecedented and systemic supply chain and other economic disruptions, including record levels of inflation, are contributing to extremely challenging circumstances for the shipyard industrial base.

Many contracts in the shipyard industrial base were negotiated with expectations of only 2 to 3 percent inflation and with properly functioning global and domestic supply chains. Inflation is still elevated at 6.5% and with lingering issues in the supply chain, companies are now faced with possible schedule delays, less output, and cost increases. Those who have entered into firm-fixed-price contracts (FFPs) are even more susceptible to the changing dynamics of today's economic environment. Unfortunately, in most cases, the services have expected the private shipyard industry to absorb the delta in costs.

Because FFP contracts are more vulnerable to inflation-driven price increases, firms with fewer resources will bear the brunt of inflation as they work to deliver on government contracts.

QUESTION SUBMITTED BY MR. HORSFORD

Mr. HORSFORD. Last year Mr. Norquist and NDIA appeared before the House Manufacturing Caucus to underscore the importance of U.S. CNC manufacturing and other essential manufacturers to our national security and military readiness. I will be interested in recommendations from today's hearing and how we can work with the Department to consider greater use of Defense Production Act Title I and Title III authorities to prioritize the supply chain needs of the U.S. CNC manufacturing base and other vital defense industrial base sectors facing increased competitive threats from China and continued supply chain challenges.

Mr. NORQUIST. The use of Defense Production Act (DPA) Title I and Title III authorities can play an important role in supporting the U.S. computerized numerical control (CNC) manufacturing base and other vital defense industrial sectors facing increased competitive threats from China and continued supply chain challenges. These authorities allow the Department of Defense (DOD) to prioritize and invest in critical capabilities and technologies, as well as provide financial incentives to companies that are vital to our national security. NDIA is encouraged by the work that Congress and DOD have already done to increase the breadth and scope of the DPA authorities, and our member companies believe that they can be used to address both capabilities and capacity, starting with looking for ways to address risky parts that affect national and economic security.

At the core of this issue is the fact that everyone, both commercial companies and the DOD, is competing for the same manufacturing tools, and there are only a few companies who make these machines. It's not uncommon to see six-month lead-times on major CNC machines, even in an environment where there are no surge requirements. In addition, while CNC is often the most referenced example, there are many other manufacturing tools and capabilities that are also critical to national and economic security in which there are similar issues, such as printed circuit boards.

The first challenge that needs to be addressed is to map the criticality of different machine types and to identify where the defense industry should take exception to current just-in-time practices and to invest in resilience. For more perspectives on addressing the domestic machine tool reediness gap, NDIA recommends that Congress consult with the DOD's Industrial Base Analysis and Sustainment (IBAS) machine tools program, which focuses on surge capacity requirements. Congress should work with the DOD to identify these critical capabilities and technologies that are essential to our national security and prioritize investments in these areas through DPA Title III authorities.

Additionally, to help prioritize the supply chain needs of the U.S. CNC manufacturing base and other vital defense industrial sectors, Congress can work with the DOD to ensure that DPA Title I and Title III authorities are fully utilized. This could include streamlining the DPA application process, increasing funding for DPA programs, and expanding the range of eligible companies and technologies.

In conclusion, DPA Title I and Title III authorities can play a crucial role in supporting the U.S. CNC manufacturing base and other vital defense sectors facing in-

creased competitive threats from China and continued supply chain challenges. By working together to prioritize and invest in critical capabilities and technologies, Congress, the DOD, and industry can help ensure that the DIB remains competitive, resilient, and capable of meeting the evolving threats to our national security. This will require increased cooperation between and among government and industry, and NDIA welcomes the opportunity to facilitate collaboration moving forward.

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