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**ENERGY, INSTALLATIONS, AND
ENVIRONMENT PROGRAM UPDATE**

HEARING

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

COMMITTEE ON ARMED SERVICES
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ENERGY, INSTALLATIONS, AND ENVIRONMENT PROGRAM UPDATE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON READINESS,
Washington, DC, Wednesday, March 16, 2022.

The subcommittee met, pursuant to call, at 2:02 p.m., in room 2118, Rayburn House Office Building, Hon. John Garamendi (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JOHN GARAMENDI, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, SUBCOMMITTEE ON READINESS

Mr. GARAMENDI. Good afternoon, all. Welcome. I want to welcome our witnesses. Thank you so very much for joining us today.

We have got a very important hearing here. It's on energy. It's on installations and environmental programs. So we're going to cover a lot of what all of you need to do and what the military needs to do today. It's an important part of our work.

So the meeting is called. I call to order this hearing of the Readiness Subcommittee of the Armed Services Committee. Today's witnesses oversee a wide range of programs of considerable interest to this subcommittee.

The last several NDAA's [National Defense Authorization Acts] have included significant reforms on issues related to installation resiliency, privatized military family housing, the treatment of emerging contaminants, sustainment of military infrastructure, energy resiliency, and climate change.

Today, we will receive testimony from the witnesses on the Department's progress in executing these reforms.

Of these topics, I'm particularly focused on two main areas—first, the chronic failure of the military departments to adequately maintain quality of life infrastructure, such as barracks, dormitories, child development centers. For years, I've sat in these hearings and listened to you or your predecessors across multiple administrations tell us that you have chosen to take risks to the detriment of our service members by underfunding, under-maintaining, and delaying recapitalization of quality of life infrastructure.

While you may be comfortable with the risks, we are not. Over the years, you have told us that barracks and child development centers just don't compete well in the budget.

Well, the inadequate annual investments does not match the lip service from your service secretaries about the importance of service members and their families.

In the fiscal year 2022 NDAA we just plain got tired of waiting for you and your predecessors to make good on your promise to take—to make service members a priority and take some of your ability to take the risk away.

The fiscal 2022 NDAA forces the military departments to allocate a fixed percentage of the facility sustainment and renovation funds to unaccompanied housing. Combined with the nearly annual congressional plus-ups of the related budget lines, the forced emphasis on these facilities should start remedying a problem which you have proven to be incapable of fixing on your own.

I know it will require adjustments in your thinking. But I'm confident that your operational needs will continue to compete favorably while our service members finally start to see relief from the poor and failing conditions that they have been forced to endure.

Now, my second focus is on the issues of resiliency and demand—energy demand reduction. While there are those of us that believe mitigating climate change is an end of itself, the idea that the measures of demand reduction are inherently detrimental to our readiness and lethality is simply not true.

The danger of this false dichotomy prevents us from taking action necessary to address the problem of climate change. It's now time for a clear-eyed look at how to evolve our platforms and our installations to succeed in an environment of near-peer competition.

We know that demand reduction is necessary to address our contested logistical challenges both in the Pacific and with that oceanic tyranny of distance and in the more terrestrial areas of operation.

This was true in the Pacific in World War II, and as all of us are watching this issue play out in Ukraine with Russian convoys, that are learning their own lesson about the tyranny of distance and supply/demand.

While supply is part of the answer, it can only take us so far. Logistic lines will always be targeted and tactical vehicles that use less fuel will help us lengthen the tether our fighting forces have to resupply and extend their reach and on station time.

I applaud the Army. I applaud the Army for its recently released climate strategy that seeks to transition our tactical fleet away from a sole reliance on fossil fuels, and look forward to hearing more not only from the Army but from all of you on how you will execute the Army's vision and your own vision while remaining the world's premier fighting force.

Installation resiliency remains a key focus to ensure our military bases can continue to perform their critical missions in the wake of natural disasters or disruptions to the electrical grid.

I strongly support the Department's transition to nontactical electric vehicles. Not only will those vehicles lower the Department's carbon footprint, but if we pair them with the right support infrastructure, they can become another source of resilient power for critical missions.

I look forward to hearing about the Department's progress on energy and water master plans as well as for the full installation master plans, which we mandated in fiscal 2020 NDAA.

Finally, we must look at our critical missions outside of the continental United States as well. One of the most extreme examples of the need for effective climate and energy resiliency planning can be found at the Kwajalein Atoll.

The atoll is already experiencing sea level rise fueled by high surf that will lead to increasingly frequent overwash events that destroy freshwater supplies and infrastructure on the atoll. This is not a concern of the distant future but this is a concern now and will certainly be in the days ahead.

By 2030 it'll be a constant problem. In addition, although Kwajalein is almost completely dependent on outside liquid fuel sources for energy, nothing has been done to increase conservation and resiliency to mitigate that vulnerability. This is but one example.

With the critical missions performed on Kwajalein, these two issues combine to make it a compelling test case for installation resiliency master planning and readiness focused on energy conservation measures.

I look forward to the hearing, to the witnesses, their testimony, and to their discussion about their work in these critical areas, as well as providing an update on these and a myriad of other topics of mutual interest over the next 2 hours.

And with that, I turn to our ranking member—our new ranking member—Congressman Mike Waltz of Florida.

Mike, welcome. I look forward to your remarks.

[The prepared statement of Mr. Garamendi can be found in the Appendix on page 33.]

STATEMENT OF HON. MIKE WALTZ, A REPRESENTATIVE FROM FLORIDA, RANKING MEMBER, SUBCOMMITTEE ON READINESS

Mr. WALTZ. Thank you, Mr. Chairman. I'd like to welcome all of our witnesses today for our hearing to discuss MILCON [military construction], environmental and energy programs, as well as base and—as well as the base and facility accounts.

And I think I speak for all of us and that we all wish we could have this important conversation after reviewing the President's budget request for fiscal year 2023. But I look forward to follow up with you after it's released.

But even without the budget request, I appreciate the opportunity to address and have a conversation with you about these challenges, and for too long the services have kicked the can, frankly, down the road failing to prioritize important investments in aging and failing infrastructure.

We're seeing years and years of deferred maintenance that have made facilities inefficient or even incapable of supporting their intended mission, which has negatively impacted readiness and retention.

And the very real consequences of this are on display with the recent fuel leak at the Red Hill bulk storage facility in Hawaii that has now led to the decision to close that facility.

While I, personally, support the defueling of Red Hill, I am particularly concerned that the Department's long-term plan to remediate Red Hill could weaken our national security. We cannot allow our national security to atrophy because of a deficient and expe-

dient planning process and we have to strike that—we have to strike that balance.

Failure to modernize and maintain our facilities will make them less sustainable for the future because they will be either less resilient or potentially more vulnerable to risks like extreme weather events.

I'm also particularly concerned about the lack of emphasis on our soldiers and sailors. It is imperative that we provide safe barracks free from mold and mildew.

I also look forward to understanding options for Navy and Air Force to adopt the Army's privatization of lodging initiative that thus far, my understanding, has been demonstrated to have about a 20 percent savings.

Being from Florida, I'm certainly aware of the challenges of sea level rise and extreme weather and the challenges they pose to our installations, to our people, and to our mission.

We can prepare our military installations at home and abroad for future challenges with better planning that focuses on resilient infrastructure investments.

We have made progress to this end for certain by requiring master plans to consider these risks, but we have more work to do.

Our installations also remain largely dependent on commercial electric grids, as we've—I've discussed with each of you, and are vulnerable to any disruptions that those commercial grids may suffer.

So to protect our mission capability, I hope we continue to pursue solutions like islanding capabilities and generation from microreactors.

I also wanted to express my dismay at our European force structure's failure and I think it's been an absolute failure from a deterrent standpoint to dissuade Russian aggression. It is obvious that our forces in Germany—it's obvious to me, at least, that our forces in Germany should be relocated further east to Romania, Poland, and the Baltic states.

Additionally, such forward basing should be done on a permanent, not a temporal, basis. And finally, we need to ensure our European force structure is not reliant on Russian oil and gas.

It is time to restructure our European force posture to this new reality.

On the operational side, I am concerned the Department is not as far along as we should be. Given the threats on the horizon, we must be able to supply energy forward and sustain operations in contested environments.

I, certainly, have sad and tragic personal experience with soldiers and Marines that would be alive today if we weren't carting so much fuel across contested supply lines. These contested and challenged environments for our logistics will be the new normal and this will require us to shed old approaches.

The Chinese Communist Party [CCP] is prioritizing supply chain disruption. It's a key part of their strategy. We cannot and we can no longer afford to admire the problem—to have hearings like this to talk about the problem without meaningful action and I certainly expect and hope you'll come to this committee for the resources you need for those solutions.

Energy demand also requires attention and better coordination within the Department as we develop future systems. The services must work with acquisition teams up front to drive efficiency at all levels.

I understand that President Biden has made climate change a national priority, but we cannot sacrifice the capabilities that our men and women in uniform need.

DOD [U.S. Department of Defense] has published their climate action plan. Last year, the services were beginning to roll out their own, and as these initiatives turn into actions, they turn into programs, we must maintain a mission first mind set. We must stay focused on winning wars and we must keep that mind set with solutions that are cost effective, efficient, and realistic.

So as global events like the invasion of Ukraine and Russian hostilities against Ukraine, the growing threat of China, have made clear, we must make smart investments. We're running out of time and the warfighter must come first.

Finally, the fiscal year 2022 NDAA authorized an historic level of spending for the cleanup of PFAS [per- and polyfluoroalkyl substances] in contaminated military installations [and] surrounding areas. We all hope to see that momentum continued.

A lot of good work has been done. But I'd appreciate an update on the efforts underway to replace AFFF [aqueous film forming foam] and their efforts to reduce accidental releases.

Again, I want to thank you all for coming, for appearing today. I look forward to our discussion.

Mr. Chairman, I yield back.

Mr. GARAMENDI. Thank you very much, Mr. Waltz. I concur in everything that you laid out there.

I'm now going to turn to our witnesses. I'll introduce all four of them and then call on Mr. Cramer to be first.

Mr. Paul Cramer is the Acting Assistant Secretary of Defense for Energy, Installations, and Environment, Office of the Secretary of Defense.

Mr. Paul Farnan is the Acting Assistant Secretary of the Army for Energy, Installations, and Environment, the Department of Army.

The Honorable Meredith Berger is the Assistant Secretary of Navy for Energy, Installations, and Environment at the Department of Navy.

Mr. Edwin Oshiba is the Acting Assistant Secretary of Air Force for Energy, Installations, and Environment at the Department of Air Force.

I now call on Mr. Cramer for his testimony.

Mr. Cramer.

STATEMENT OF PAUL D. CRAMER, PERFORMING THE DUTIES OF ASSISTANT SECRETARY OF DEFENSE FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT, OFFICE OF THE SECRETARY OF DEFENSE

Mr. CRAMER. Thank you, Chairman Garamendi, and to Ranking Member Waltz, distinguished members of the subcommittee.

On behalf of myself and my service colleagues, thank you for the opportunity to discuss the Department's energy, installations, and

environment programs. Our priority is to address mission requirements, ensure service members have a safe and resilient place to live and work, and also begin to address installation resilience challenges.

We are committed to protecting our personnel and their families using a robust all-hazards approach that addresses the wide range of natural and manmade threats.

For example, DOD is building upon our long track record of addressing PFAS issues, responsibly following the science and the direction of Congress.

As you know, the DOD PFAS task force was established in July 2019 to provide strategic direction to ensure a holistic approach on the Department's efforts to address PFAS.

The strong interagency collaboration of the Department is well structured and, thanks to Congress, well resourced. We are well positioned to eliminate the use of current AFFF with several agents performing well in initial testing. We are continuing to evaluate these agents to determine toxicity and identify engineering challenges related to transitioning equipment to a new formulation.

We have also expanded our efforts through outreach to—on a quarterly basis to talk to communities that are affected by PFAS and these are hosted by senior officials.

As part of these events, we solicit questions and provide responses that are posted on our DOD PFAS website. In addition, we are updating our existing website with installation-specific data while developing a more robust, interactive, and user-friendly website.

The Department continues to focus on ensuring that service members have access to safe, quality, affordable family and unaccompanied housing. With regard to privatized housing, the Department continues to prioritize actions that improve the tenant experience and rebuild tenant trust.

Our initial phase was predominantly focused on implementing the updated MHPI [Military Housing Privatization Initiative] Tenant Bill of Rights, which was published on August 1st, 2021, and the requirements embedded in these rights are now being implemented.

The Department has issued all policy guidance necessary to implement all rights at all MHPI projects. With few exceptions, all 18 tenant rights are now available.

Finally, the Department depends on resilient installations. To prepare for peer competition, where even the homeland is contested, the Department is addressing a range of technological, operational, and policy initiatives to enhance the use of energy in warfighting.

We have seen firsthand the effects climate and severe weather has had on our installations. To that end, we released the DOD Climate Adaptation Plan to guide DOD activities and investments to enable operations to continue under changing conditions while also preserving operational capability and enhancing the natural and manmade systems essential to the Department's success.

We released the Defense Climate Assessment Tool to enable installation leaders and planners to understand consistent exposure

assessments and identify regions or installations for additional climate-related studies.

We are prioritizing investments in both installation energy and operational energy. This includes investments in the Energy Resilience and Conservation Investment Program [ERCIP], Readiness and Environmental Protection Integration Program, and our research and development programs.

We appreciate Congress and specifically this subcommittee's continued support as we work together to provide the best support possible to our soldiers, sailors, airmen, Marines, guardians, and their families.

I look forward to your questions.

[The prepared statement of Mr. Cramer can be found in the Appendix on page 36.]

Mr. GARAMENDI. Thank you very much, Mr. Cramer.

I'm now going to turn to Mr. Farnan, who is setting, well, the words you military folks like to use, the pacing threat. I'll say this is the pacing challenge.

Mr. Farnan, if you could you explain to us what the Army is doing with regard to your energy and climate adaptation model.

STATEMENT OF PAUL W. FARNAN, ACTING ASSISTANT SECRETARY OF THE ARMY FOR INSTALLATIONS, ENERGY, AND ENVIRONMENT, DEPARTMENT OF THE ARMY

Mr. FARNAN. Chairman Garamendi, Ranking Member Waltz, members of the subcommittee, on behalf of the soldiers, families, and civilians of the United States Army, thank you for the opportunity to discuss the contributions made through the Installation, Energy, and Environment portfolio to overall Army readiness.

The Army foundational priorities of people, readiness, and modernization guide our strategies and investments. Secretary Wormuth recognizes that the Army's greatest strength, most valuable asset, and most important weapon system is our people.

At the core of our installations mission is the support for the training, education, work, and the lives of our soldiers and families. The Army's mission is to fight and win the Nation's wars. This begins at our installations.

Power projection in any future conflict will occur from a contested homeland. Installation resiliency will be the critical enabler to allow us to conduct our operations under these conditions, as well as to continue operations following extreme weather events.

Last month, we published the Army Climate Strategy, which enables our force to effectively operate in a climate-altered world. It increases the capabilities of the force and it modernizes and increases the resilience of our installations.

Installation resiliency will be greatly enhanced through such measures as onsite renewable generation, battery storage, and microgrids, enabling the Army to self-sustain our critical missions and making us less dependent on a vulnerable electric grid.

On the operational side, greater fuel efficiency of our tactical vehicles will increase our capabilities by extending the range of our combat forces while simultaneously reducing the vulnerability and burden on supply lines.

Hybridizing our combat vehicles will allow for silent overwatch, reducing the acoustic and thermal signature of our platforms, thus reducing the threat to our soldiers. These measures will protect our soldiers and will increase their capabilities on the battlefield.

The Army Climate Strategy will enhance the Army's ability to accomplish our core mission of fighting and winning the Nation's wars.

As the Army transitions to carbon-free energy, the primary focus will be on ensuring and increasing the resiliency of our installations. In this effort, we will seek partnerships with local utilities, with industry, and other willing partners. We will use every authority and tool available to us to modernize our installations while being good stewards of taxpayer dollars.

One such tool is the Energy Savings Performance Contract, which enables us to increase our efficiency with no up-front cost to the Army. We recognize the importance of this tool as a key component of our overall energy strategy, and we are committed to continuing and expanding its use.

The Army's greatest strength and most valuable asset is our people, and the efforts we take to sustain and invest in our installations directly support our people and their quality of life.

Our soldiers and families deserve high-quality safe housing. That has been and will remain a priority for our senior leadership. The Army has made significant progress implementing reforms to enhance our oversight of privatized housing and to hold companies accountable.

The Army has fully implemented the Tenant Bill of Rights at all of our installations with privatized housing, providing soldiers and their families negotiating power with the private companies that own and manage military housing.

We are also addressing the challenges with our unaccompanied housing. We have invested \$2.4 billion in barracks over the last 3 years and will continue these investments into the future.

Another important component of taking care of people is ensuring access to quality and affordable childcare. The Army is building and expanding childcare centers that will increase our capacity by over 4,000 spaces by 2026. Where on-base childcare is not available, the Army is taking steps to provide subsidies for childcare in the local community.

Through our environmental programs, the Army will remain a good steward of the land where we work, train, drill, and live. The Army is responsible for 13.6 million acres of land and we will continue to work with Federal and State agencies to ensure we comply with all environmental regulations and safeguards to protect the health of the community and the environment for the American people.

Chairman Garamendi, Ranking Member Waltz, members of the subcommittee, thank you for your continued support for our soldiers, civilians, and families. I look forward to your questions.

[The prepared statement of Mr. Farnan can be found in the Appendix on page 57.]

Mr. GARAMENDI. Thank you very much, Secretary Farnan.

And I want to also now turn to Assistant Secretary Meredith Berger from the U.S. Navy, and welcome.

STATEMENT OF HON. MEREDITH A. BERGER, ASSISTANT SECRETARY OF THE NAVY FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT, DEPARTMENT OF THE NAVY

Ms. BERGER. Thank you, Mr. Chairman, Ranking Member Waltz, and distinguished members of the subcommittee. Thank you for the opportunity to testify in the Department of the Navy's Energy, Installations, and Environment portfolio.

Since August, I've been honored to serve as the Assistant Secretary, and I'm proud to lead a team of dedicated Marines, sailors, and civilians who contribute to the important work of making our Navy and Marine Corps the best fighting force the world has ever known.

Each day we enable readiness through modernized and climate-ready installations, unrivaled testing and training ranges, resilient facilities and operations, safe and healthy conditions for our people, and stewardship of the environment as a strategic asset.

At the top of the Department of Navy's priorities is the expansion of the Fallon Training Range. With the expansion of this unique range we'll be able to ensure that we train like we fight, a critical readiness imperative.

I had the chance to visit Fallon in October. I saw firsthand the value that it brings and where we fall short without expansion. I met with the community there and learned about the importance of the land, about the strong, proud, present history and heritage of the tribes who live there. The Department remains committed to working with all stakeholders to find a viable path to expansion of the range and I look forward to working with this subcommittee to move this important initiative forward.

I also look forward to working with you on living conditions and quality of life for our sailors, Marines, and their families, something that I view as foundational to the readiness of our force and an area in which I'm grateful for your persistent attention.

We have a lot of work to do and a most recent reminder of that are the issues uncovered at Bethesda. However, we have also made some progress. We're beginning to see sustained improvement in the operation, maintenance, and customer service in the privatized housing.

I've had the opportunity to visit Navy and Marine installations and I've seen commanding officers involved in housing issues. I've seen the housing advocates in action. I've talked to residents and I've gotten their feedback.

We will continue to apply lessons learned to provide our service members and their families all that they deserve.

I look forward to working with you on climate change. It's a destabilizing force, exacerbating other national security concerns and posing serious readiness challenges. Our naval forces are in the crosshairs of the climate crisis. The threat increases instability and demands on our forces while simultaneously impacting our capacity to respond to those demands.

For that reason, for Navy and Marine Corps climate readiness is mission readiness. Mitigation and adaptation to increase our resilience is an operational imperative. With those guiding factors in mind, we'll soon release our climate strategy.

Lastly, you don't need to look any further than today's headlines to know that energy can be used as a weapon, and it is for that reason that the Department of Navy is focused on reliable energy sources.

Our installations are essential shore platforms from which our naval forces train, deploy, and maintain forward presence. Their access to reliable energy ensures the success of the Department's mission critical infrastructure in our readiness pipeline.

For that reason, we are grateful for and continue to focus on the energy authorities that advance and preserve our mission readiness.

Thank you, and I look forward to your questions.

[The prepared statement of Ms. Berger can be found in the Appendix on page 68.]

Mr. GARAMENDI. Thank you very much, Madam Secretary.

Now I turn to Acting Assistant Secretary of the Air Force, Edwin Oshiba.

Mr. Oshiba, your turn.

STATEMENT OF EDWIN H. OSHIBA, ACTING ASSISTANT SECRETARY OF THE AIR FORCE FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT, DEPARTMENT OF THE AIR FORCE

Mr. OSHIBA. Thank you, Mr. Chairman.

Chairman Garamendi, Ranking Member Waltz, and distinguished members of the subcommittee, thank you for the opportunity to testify today and provide updates to the Department of the Air Force's installation, energy, and environment priorities.

Our Nation faces an array of complex challenges to include the continued rise of competition with pacing adversaries across multiple domains, intensifying rates of technology change, and fiscal pressure.

Additionally, we continue to experience the growing strength and frequency of extreme weather events, which, unmitigated, endanger our airmen, guardians, their families, and their installations and critical infrastructure.

In addressing these challenges, the Department continues to orient our infrastructure priorities in line with the interim national security strategic guidance and National Defense Strategy.

Coupled with the Department's guiding principle of One Team, One Fight, we can and will overcome these challenges and provide installations which underpin our Nation's security.

Accordingly, we view our installations as foundational to enabling and protecting combat power in air, space, and cyberspace. The Department remains committed to ensuring they are ready by investing in the right capabilities at the right time in the right place with a diverse inclusive team of trained and equipped airmen and guardians, resilient against natural and manmade threats, and balanced to be effective, efficient, and optimally postured.

Since 2019, the Department's infrastructure investment strategy has guided our efforts to make our installations ready and resilient through decisions meant to balance effectiveness and efficiency.

The strategy informs policy investment decisions supporting weapon system modernization and combatant command priorities while balancing the need to recapitalize our aging infrastructure

and facilities which improves the quality of work and life for our airmen, guardians, and their families.

Our strategy also emphasizes adoption of smarter business practices by investing at the optimum point in facility life cycles, identifying smarter acquisition methods, strengthening installation planning, and leveraging partnerships and third-party investment.

Finally, we continue to implement installation and operational energy resiliency initiatives, which harden our infrastructure against a myriad of threats and significantly reduce energy consumption.

We are cognizant that challenge—that changing climate and severe weather events have and will continue to severely impact our installations and the missions they enable.

Climate change effects are accelerating and the time for action is now. The Department is on the cusp of releasing its climate action plan, aligned with our operational imperatives to enhance resiliency and readiness while balancing mission effectiveness and fiscal efficiency.

It will lay out priorities and actionable objectives to address the challenges of a changing climate through improvement—through improving operational energy efficiency, enhancing installation resilience, diversifying energy sources, and developing a climate literate force.

We continue to emphasize continued quality of life investments in housing, dormitories, child development centers, and other support facilities as one of our top priorities.

This underscores the need to balance operational priorities with preserving the readiness and resilience of our most important resource, our airmen and guardians. We appreciate Congress investing in five additional child development center projects in fiscal year 2022's budget and we will work toward unaccompanied housing investments in compliance with the fiscal year 2022 NDAA.

Additionally, the Department is committed to ensuring our privatized housing projects provide safe, quality, well maintained housing for all airmen, guardians, and their families.

With the help of Congress, our project owners have agreed to adopt the Tenant Bill of Rights and we added over 200 government housing management positions to maintain our focus on improved oversight, long-term project health, and sustainment of the privatized housing inventory.

Finally, we remain firmly committed to executing robust environmental programs and protecting human health.

Regarding PFAS, no one on or off our installations is drinking water with PFAS and PFOA [perfluorooctanoic acid] concentrations above the EPA [Environmental Protection Agency] lifetime health advisory attributable to our operations. We developed a robust framework to identify and remediate impacted areas within our legal authorities and remediate impacted areas—I'm sorry—and remediate impact areas with no legal authorities.

We will also continue to proactively communicate and partner with local communities, State and Federal agencies, and elected officials at all levels in addressing this issue.

In summary, Department of the Air Force is committed to preserving ready, resilient installations, our platforms to enable and

project combat power, using a strategy which balances operational effectiveness and resource efficiency as part of a broader one team to win our one fight.

Chairman Garamendi and Ranking Member Waltz, thank you again for the opportunity to testify today and I look forward to answering your questions.

[The prepared statement of Mr. Oshiba can be found in the Appendix on page 83.]

Mr. GARAMENDI. Thank you very much, Mr. Oshiba.

We're now going to turn to questions, but before I do, without objection, the written testimony as supplied by the witnesses will be entered into the record.

Without objection, so ordered.

Also, any written testimony from any of the members that is available through the course, without objection, that too will be entered into the record.

Moving on, as I said a moment ago, the pacing issue—the pacing seems to be from the Army right here, having put forth its climate strategy. I'd like to, first, begin with the Army for a fuller explanation of how that climate strategy affects the three fundamental issues of this hearing: energy, the installations themselves, and then the environment.

So, Mr. Farnan, if you would go into that in some depth and detail I would appreciate it. Let's just say you got about 5 minutes to do that. Have at it.

Mr. FARNAN. Thank you, Mr. Chairman.

So on the installation front, the goal of the climate strategy will actually increase the resilience of our installations. As I said in my opening statement, we believe that any future war will be fought from a contested homeland.

So the Army's mission to project our forces to the overseas battlefield we'll first have to deal with the contested homeland. So the fight will start at the installations. Whether it's a natural disaster or a nonkinetic cyber attack on the grid, we need our installations to be able to maintain power, to continue our missions, to project our forces.

The climate strategy lays out steps with renewable energy generation that's self-contained on the base using battery storage and tying everything together with microgrids so that in the event of a grid failure our installations—our mission critical systems on our installations will still be powered and will still be able to operate and accomplish our mission.

This also carries forward to the operational forces—the tactical vehicles, hybridizing them and eventually, over the course of the next decade or two, getting to fully electric tactical vehicles.

Fuel on the battlefield means long supply lines, and as Ranking Member Waltz put, I share your concern about the safety of our service members protecting those fuel lines.

If we can reduce the amount of fuel that our forces need on the front lines, we can reduce the burden on our logistics lines. That also carries forward to our contingency bases. In the climate strategy, we clearly say that we're going to put out a contingency basing policy that will call for the requirement and the standardization of all forward contingency bases, requiring the most efficient struc-

tures, requiring the most efficient generators, tying those generators together with microgrids to ensure they run at their peak efficiency, pairing them with battery storage to increase their efficiency even more, using portable renewable generation to further reduce the fuel load.

We're looking at every possible way to reduce the fuel burden that burdens our soldiers.

And then on the environment, climate change is affecting the Army already. It's affecting our installations. Severe storms, wildfires, they are threatening not just the physical part of the installation but they're also threatening the health and safety of our soldiers and families. They're also—it's also impacting our operations.

There's an increasing need for a permanent Arctic force. There's also an increasing need for defense support to civil authority missions, which is basically supporting disaster response operations here at home.

So everything that we're doing is being impacted by the climate. This climate strategy will do two things. One, it will better enable the Army to operate in a changing environment and will also do our part to help reduce greenhouse gas emissions and help mitigate the effects of climate change.

Mr. GARAMENDI. Thank you very much, Mr. Farnan.

And now what—for detail about the U.S. Navy with regard to its energy, installations, and environmental and your upcoming climate strategy, I'm particularly interested on the installation side of it.

How will you be able to—aside from the Fallon Training Range, which you've already discussed, could you also discuss other installations, particularly those that are impacted by rising sea level as well as storms?

Ms. Berger, if you would carry forth.

Ms. BERGER. Yes, Mr. Chairman.

As I mentioned in my opening remarks, everything that we are thinking about is very mission driven and so as we think about where we see impact, you're exactly right, it is where we're seeing sea level rise, where we are seeing the impact of storms on our ability for installations to withstand impact.

So while we are in the final stages of preparing our climate strategy, what we are doing is implementing a lot of these good practices.

Ranking Member Waltz mentioned islanding. The Marine Corps is actually a great example of places that we have seen success with islanding and other energy resilience.

And so at Yuma, at Miramar, and also at Parris Island, we have been able to set up an energy infrastructure that allows those installations to run for actually 14 days on their own to be able to island, to be able to distribute load because of exactly what Mr. Farnan was saying.

If you need to have these installations running on their own, if this is a space that we are fighting from we need to make sure that they are resilient and able to move forward. So that is one place that we have seen some success and that is a resilience that will be something that's very important for us to be able to operate.

Sea level rise—of course, Norfolk is a primary example of that. I was able to visit Norfolk as one of the first places that I went when I came into my job, and there is flooding that is happening there that is impacting even the most basic of our ability of our Navy service members to be able to operate. They can't bring their kids to school, and if they can't bring their kids to school then they cannot get to work. If they are not getting to work then they cannot get there to train.

And so when we talk about readiness as a comprehensive approach, this is family readiness. This is service member readiness. This is the ability to fight and, if necessary, win.

And so at every point that we take a step backwards because of these impacts, we are not able to be as ready as possible.

Mr. GARAMENDI. Thank you.

And now, Mr. Oshiba, if you'll take the same set of questions and go into more detail about what the Air Force is doing to address the climate crisis and how you can do it—fix the problems.

Mr. OSHIBA. Thank you, Mr. Chairman. Like we mentioned, we are on the cusp of publishing our climate action plan and we took a lot of good ideas and lessons learned from the Army and the other service members and also took this opportunity to really document some of the ongoing actions that we have taken up to this point.

We have been moving out on installation energy plans now for the last couple of years. We have published 42 to date. We have 16 more that we have planned for this fiscal year, and it's focused upon resiliency measures for our installations around five key areas: robustness, resourcefulness, redundancy, response, and recovery, and in many cases, I think, covers many of the different aspects that both of my colleagues have already mentioned on the installation space.

Another big area that we have started to make some progress on is we have conducted these energy resilience and readiness exercises at our installations, or what we call pull the plug exercises, and the idea there is to understand where our vulnerabilities is in terms of energy sources so that we can apply fixes to those vulnerabilities should that time come when we are disconnected from the grid.

That helps to inform our planning, moving forward, in upcoming years and ensure that the right investments are made at the right places to mitigate those vulnerabilities.

And then the last area to cover is some exciting things we're doing in the operational energy realm. There has been some work being—that's been going on over the last couple of years in testing drag reduction technologies primarily for mobility and refueling assets—things like microvanes and winglets—that allow us to extend the range of our assets that provides operational reach with fewer assets and what we call create more, if you will, loiter time to refuel our fighter assets once they're in that—their refueling tracks.

So those are things that are being tested at the moment. We'll capture all of those things in our climate action plan. I really look forward to some exciting things coming up in the future.

Mr. GARAMENDI. If I might follow along, Mr. Oshiba, what you just raised, in your written testimony you went into some detail

about the structures themselves and the new building codes that are being implemented, specifically at Tyndall and at Offutt, two Air Force bases that were severely impacted by a hurricane and flooding.

I'm not going to take into detail now in this hearing the issues of the building codes and conservation in the buildings themselves—installation and the like. But I want to get into detail with you and I want to also take this up with the other departments with regard to installations' building codes.

For the Navy, you might think about earthquake building codes and China Lake. For the Army, you might want to think about deep freezes. For the Air Force, the same way. So we want to deal with that. For all of you, the principal purpose of this hearing is to develop the necessary changes, authorities, and prioritization for the upcoming NDAA.

So we're going to drill down deeply at the staff level and with other communications with each of the departments so that we can structure the NDAA to fully address the challenges that you face.

With that, I now turn to Mr. Waltz. Following Mr. Waltz's questions, which—for which he has an unlimited amount of time, I'll turn to Mr. Kahele, who is next on the gavel list.

So, Mr. Waltz, your turn.

Mr. WALTZ. Thank you, Mr. Chairman. I'll try not to abuse that blank slate there.

But, Ms. Berger, you mentioned, and I think rightly, that—and I agree that energy is being used as a weapon right now and we're seeing that on the headlines of all of our news feeds around the world.

My concern, despite that fact, is that our bases in Europe are dependent and they're vulnerable. Our bases in Europe are just as dependent on Russian oil and gas as Europeans are.

And I realize that we have a certain dependency on the host nation, but I think, Secretary Cramer—because I think there's a broader issue. I'll go your way. This is more of an OSD [Office of the Secretary of Defense] issue.

What steps are you taking? What steps is the Department taking to eliminate or at least significantly reduce our European bases from our addiction to Russian gas?

Mr. CRAMER. So, thank you, Ranking Member, for that question. Yeah. So it's a complex answer, as we discussed and you mentioned here, is we are dependent and reliant on the host nation, regardless whether it's in Germany, Italy, and the Pacific, for that fuel source, because even if we ran our own we would still have to use that same source.

And so what the priority within the Department is is to build resilience to reduce that hazard so you have multiple sources of power, not relying on one source of power.

So we have really emphasized over the last few years microgridding so that we can create grids within grids and not rely on that; alternate sources of fuels where we have installed renewables; and to the extent that we can't work any of those to have some redundant system to continue to operate, we're going to get into the point where we're going to produce our own electricity.

Mr. WALTZ. So within that—so, for example, the Army has, you know, laid out in their strategy their intent to put microgrids in. Are we prioritizing European theater bases or are we prioritizing home station?

How are you shifting or are you shifting your priorities across the Department but also within the Army, given what we're seeing and given that this has really caught a lot of people—well, it shouldn't have caught them off guard but we're seeing it front and center. I mean, the Germans have gotten religion. We should, too.

Mr. CRAMER. Yeah, absolutely. Yeah, we have done planning. I'll leave it up to the Army to talk about the Army bases. Same as the Air Force in Europe, they've done a lot of work, too.

But we have emphasized microgridding in the ERCIP program, a MILCON like program, and we have got a lot of flexibility to use those funds to build overseas. It's not just CONUS [continental United States] based. So where we see a hazard that we cannot mitigate through any other means.

Consumption is another one I didn't mention earlier. But at the end of the day, part of reducing reliance is just use less. So we got to get conservation in that, and I'll turn it over to the Army if they want to speak.

Mr. FARNAN. Yes, sir. We agree. We do have to look at what bases and in what order we're implementing all of this. As we put together our implementation plan for the strategy, certainly, the power projection platforms here in the U.S. are a priority.

Given the events—the recent events—we do need to relook at how we are prioritizing our overseas installations, dealing with all the issues that Mr. Cramer has said.

But as we build out our strategy, we're going to put the prioritizations in there and it will include looking—relooking at where we're—how we're going to do—how we're going to prioritize our European installations.

Mr. WALTZ. When do you think that implementation plan will be complete?

Mr. FARNAN. We are looking—this is March—by June. By middle of June, we're hoping to have it out. We're looking at about a 90-day plan.

Mr. WALTZ. Okay, great. Just while we're talking about the climate strategy, I worry that the timelines included—how those timelines included overlay with mission capability, right.

I mean, are we producing the most effective, the most lethal, vehicles for our soldiers in the world? How are we prioritizing that with carbon emission? Number one.

Number two, my other concern is, obviously, as we move to an all-electric or your strategy aspires to move to an all-electric fleet, while that may be good for the climate—I don't disagree with that—I worry that the Chinese control 90 percent of the world's lithium, cobalt, graphite.

They have—they have truly gobbled up and created a dependency with those supply chains, not to mention the fact that the way they do their mining is some of the most abusive and polluting in the world.

So where—I was looking through it last night—where in the strategy do you onshore those capabilities or secure those supply

chains if we're going to have by—in the next 15 years, our nontactical and then eventually our tactical fleet go all electric?

Mr. FARNAN. Yes, sir. So in the climate strategy—the Army's core mission of fighting and winning the wars—nothing in the strategy will detract from that. We believe it actually enhances our ability to do so.

Every step we take, every plan we make, we're going to do everything very methodically and deliberately, and ensure that nothing we do detracts from the capabilities of our soldiers on the battlefield or reduces the protection of our soldiers.

So as we plan this out, certainly, a lot of the technologies aren't developed yet. We're going to work with industry on the RDT&E [research, development, testing, and evaluation] front to advance these technologies over the next decade or two.

That's why the tactical vehicle electrification timelines are so long, feeding out into the 2030s and beyond.

Mr. WALTZ. Just that risk—sorry—just that risk—I don't want to take up too much time—we produce oil and gas here in the United States. Those supply lines are secure. The critical minerals to produce an all-electric fleet are not secure.

So can you assure me we will have secured those supply chains before we make this transition? Because otherwise you're leaving us incredibly vulnerable.

Mr. FARNAN. So, sir, as we make the transition, just like the rest of society, the Army has the same issues with supply lines and the constraints that we're under.

How we move forward on this, like I said, we're going to make sure that everything we do nothing will detract from our capabilities. We will work with industry to figure out how we can ensure those supply lines. We look forward to working with the committee and with Congress as a whole to find solutions to these problems as we move forward.

Mr. CRAMER. Ranking Member, if you don't mind, I—

Mr. WALTZ. Sure.

Mr. CRAMER [continuing]. Can emphasize some of that.

So while—we're not talking about the 2023 budget. We have talked within the Department about onshoring some of those rare earth minerals at the interagency level. So it is a priority within this administration to do that onshoring. Is it going to, you know, magically appear that we figured out how to work through our environmental regulations, everything that's stacked up over the years?

No, but it is a priority and we're going to start knocking some of those down and—

Mr. WALTZ. I think you would find enthusiastic support here with this committee.

Mr. FARNAN. Yes. That's why I want to make sure that—

Mr. WALTZ. I can't speak for the chairman but at least for myself.

Mr. FARNAN. Yeah. Make sure that you know that we are looking through those onshoring, recycling of the current batteries. That's another, you know, area that we can get rare earth minerals out of batteries as they get end of life. And so we're investing heavily

in that analysis to help us, you know, overcome some of the supply chain vulnerabilities.

Mr. WALTZ. I just hope those solutions will be in place before we transition a fleet and find ourselves vulnerable.

Last question, Mr. Chairman, and, really, this is all our witnesses but I'll start with you, Mr. Cramer.

Obviously, hypersonics are a critical issue and will be critical to the future flight. The concern is are we prepared as we should be here at home when it comes to the availability of ranges and areas for fifth- and sixth-generation weapons.

What challenges do you face in the path forward to having ranges and testing facilities that can support the next-gen? How can we help?

Mr. CRAMER. Sir, from the OSD level, we're making sure that we have our policies and procedures in place to allow that. The individual—I'll let the military departments talk about ranges, specifically, because that's in their purview.

But we're making sure that through our clearing house that we have set the priorities so that we can expand ranges, you know, overflight and we're working through those issues as they come up.

And so, to date, we have not had a lot of issues that bubbled up to the OSD level because I think we're still in the nascent phase of that, and I'll turn it over to—

Mr. WALTZ. I'll just open it up if anybody, you know, wants to make sure they highlight anything for the committee.

Mr. FARNAN. Yes, sir. So I can't speak to a specific system. But what I can say is that we work very closely with our G-3 and as they're looking forward to any future weapon systems where the basing and trainings can be held we lay out our budget process and our planning process to ensure we're tied with them so that we are ready as the systems come online.

Mr. WALTZ. Okay. Great. Thank you, Mr. Chairman. I yield.

Mr. GARAMENDI. Thank you very much, Mr. Waltz.

You've correctly identified a set of problems and we will—we will be pursuing that set of problems. I will point out that the administration's policy is buy America. Make it in America.

That also extends to key allies being able to provide the critical ingredients for future electrification and those—certainly, Australia being one and other allies around the world that can augment our own domestic supply for rare earth for but one example.

We can go into that in more detail and we will, and you're absolutely correct that this entire strategy doesn't work if we're depending upon Russia for oil and gas and then Europe, or rare earth materials from China.

So that is part of the administration's overarching policy on make it in America, buy America.

I'm now going to turn to Mr. Kahele, who is the next up on the gavel order.

Mr. Kahele.

Mr. KAHELE. Mahalo, Mr. Chairman and Ranking Member, and mahalo to our witnesses for appearing here today. I'd also like to extend personal thanks to Secretary Berger for personally coming to Hawaii back in December, reaching out to me and other members of the delegation and the community, and I'd like to address

the number one military issue in the State of Hawaii today and that is Kapukaki, otherwise known as Red Hill.

A difficult but necessary decision by Secretary Austin to de-fuel Red Hill within the next 12 months and permanently close the facility is one that I fully support. It's the right decision and I commend him for his leadership, as well as Admiral Aquilino, Admiral Paparo, General Flynn, and everyone else in Hawaii moving heaven and earth to secure this 80-year-old World War II era facility that has outlived its useful life while also restoring safe, clean drinking water to the people of Oahu and the almost 100,000 military service members and their families who depend on the Navy's water system every single day.

Although I respect opening comments from the ranking member from Florida, I don't think that many of my colleagues in Congress and many on this committee fully understand the complexity of the ongoing crisis at Red Hill.

Fresh clean drinking water is national security and it's imperative to readiness. Without it, we severely affect the operational capability and readiness of INDOPACOM [U.S. Indo-Pacific Command], USARPAC [U.S. Army Pacific], PACFLT [Pacific Fleet], PACAF [Pacific Air Force], and MARFORPAC [U.S. Marine Corps Force Pacific], all of which are within a 5-mile radius of the leaking Red Hill Bulk Fuel Storage Facility, where over 100 million gallons of fuel sit 100 feet above one of Oahu's main water aquifers.

On February 11th, I introduced the Red Hill Watershed and Aquifer WAI [Watershed and Aquifer Initiative] Act, a bill that spells out a number of Navy responsibilities, in addition to de-fueling and permanently shutting down the facility.

I have two questions for Secretary Berger. I believe that the Navy should retain ownership of the Red Hill facility and remain responsible for the long-term environmental condition of the property.

There's still a high probability that a petroleum plume exists in the aquifer and that thousands of gallons of fuel are still unaccounted for as we speak. In the Red Hill WAI Act, it would be the Navy's responsibility to continue conducting hydrology studies and to invest in a permanent water treatment facility and water quality testing facility at Red Hill.

And so my question to either Mr. Cramer or Secretary Berger, do you support a Department of Defense investment in a permanent water treatment facility and water quality testing facility at Red Hill that would alleviate the sending of water samples to the mainland and the delay in that response time for those tests that we do?

Ms. BERGER. Representative Kahele, it's nice to see you and thank you, again, for the time that we got to spend together and it was particularly meaningful to have some time to spend with Native Hawaiian organization leaders as well.

So I appreciate that very much.

To your question, first, we're grateful because we did get a little bit of funding to look into the planning for long-term water quality testing and maintenance and health, and as you and I have talked about, it is the top priority of the Department of Navy to make

sure that we are taking care of the water, taking care of the environment, taking care of people.

I want to assure you and the rest of the subcommittee that we will not rest until we have done that completely, and so that is still very much on our list. Part of doing that is doing that in an informed and evaluated way, and so as we continue in our third-party investigation, as we continue to make sure that we are making informed decisions and making complete decisions as we go forward, we'll take in that information to make sure that we are understanding the full implications of the environmental responsibilities of the water quality responsibilities and others to include what it means to do long-term testing, which we are evaluating through this process.

And I'll turn to Mr. Cramer if he has anything to add.

Mr. CRAMER. Yeah. The only thing I would add is that, yes, the Department is not going to walk away from our requirements to, you know, clean up whatever the damage is done, and as Honorable Berger said, we're going to follow the science and if it requires long-term treatment, we're going to do that. We'll use the CERCLA [Comprehensive Environmental Response, Compensation, and Liability Act] process that we use in a lot of cases and we'll work through that long-term remediation process. Over.

Mr. KAHELE. Okay. Thank you. I know I'm running out of time so I'll save my second question if I get another chance.

Mr. Chairman, Mahalo.

Mr. GARAMENDI. You will get another chance. Let me give the gavel order. Mr. Scott and Ms. Strickland will be the next up. We now turn to Mr. Scott.

Mr. SCOTT. Thank you, Chairman.

And, Under Secretary Cramer, what percentage of the energy that we use in the Department of Defense comes from the civilian power grid?

Mr. CRAMER. It's almost virtually 100 percent. It's just short of that. But we rely heavily on the local grid for the prime power. We have got backup sources and, you know, primarily, it's off the grid.

Mr. SCOTT. That's my understanding is—

Mr. CRAMER. Except for remote areas we have got still some—like in Alaska. But yeah.

Mr. SCOTT. That's my understanding. It's in the range of 99 percent that—of the energy that we use on our DOD facilities comes from the civilian grid. There's been a lot of discussion about potential cyber attacks from Russia with everything that's going on in the Ukraine and their ability to make America pay.

I'm concerned about the capabilities of the private sector, especially in the energy sector, to defend themselves against cyber attacks. If there were a cyber attack that shut down the energy at one of our installations, it shuts down a significant portion of our capabilities, even if we have backup generation.

What is being done to work with the private sector in the resilience in defense of cyber attacks?

Mr. CRAMER. So we have set up a CMMC [Cybersecurity Maturity Model Certification] process. It's a cyber maturity model we use for the defense industrial base but it also has applicability to

the grid. So we have got a website with all these links on that helps them out.

And then the real trouble spot with any of the cyber attacks is if you think you've answered the mail then you've really made yourself vulnerable to more attacks, and so it's a repetitive process. It's an education process.

Mr. SCOTT. It is.

Mr. CRAMER. Our CIO [Chief Information Officer] runs that not—you know, it's not within A&S [Acquisition and Sustainment] or EI&E [Energy, Installations, and Environment], but we work hand in glove on the facility-related control part of that. And so—

Mr. SCOTT. So the backup generation is that predominantly generators that are powered by diesel?

Mr. CRAMER. It is—it is a mix of fossil fuel generators. Some of them are microgrid. There's ones we're getting into large-scale battery power, as Honorable Berger said. There are ones that island.

We have multiple sources of power that feed those microgrids and, you know, in essence, that's why we do the backup power—our backup—excuse me, the black start exercises so that we can test all those systems out to continue to operate absent a grid.

Mr. SCOTT. But the bottom line is diesel is dependable, and I am—I will just tell you I'm concerned about our desires getting ahead of where the technology is.

And, Mr. Farnan, I know you spoke to this a little bit and Mr. Waltz spoke to this as well. But when we talk about electrical tactical vehicles, those tactical vehicles have to be charged, correct?

Mr. FARNAN. Yes, sir.

Mr. SCOTT. And that technology is significantly into the future in which we would be able to move to electric tactical vehicles. Is that correct?

Mr. FARNAN. Yes, sir, and that's why in our strategy we put full electrification of tactical vehicles not until 2050.

Mr. SCOTT. Okay. Would you agree even in 2050 some type of power supply has got to push forward?

Mr. FARNAN. Yes, sir. We have to—before we can have fully electric tactical vehicles, we have to figure out the problem of battlefield charging, and Army's Futures Command is working on that already.

Mr. SCOTT. I'm very concerned about the issue of battlefield charging, I don't mind telling you. I think that's a scenario in which you take out one you take out all because if you take out the power generation then you've taken out everything that is dependent upon that power generation in that battle.

One last question. Mr. Oshiba, you spoke to the PFAS issue before. I represent both Moody and Robins Air Force Base in Georgia. Where are we in the cleanup of the contaminated areas and what is needed to accelerate the process of the potential contaminations?

Mr. OSHIBA. Thank you for the question, Congressman. I don't have the details specifically to those two—to those two installations. I'd be happy to come back and provide you that information specific to those two.

Overall, we have assessed all of our 204 installations. We are—we have done preliminary assessments and site investigations for

at least two-thirds of them and we're following that CERCLA process in order to do the long-term cleanup.

Mr. SCOTT. Well, I look forward to any information on the two bases I represent. I do not believe that our testing is above what is recommended, but if it is, we certainly want to know and be a part of that solution.

So I appreciate all of you, and I'm just very concerned that with everything going on in the world today we don't let our need to win get ahead of where the technology is.

Mr. GARAMENDI. Thank you very much, Mr. Scott.

We now turn to Ms. Strickland.

Ms. STRICKLAND. Thank you, Mr. Chair.

I don't have any specific questions at this time. But I thank you all for this very important discussion, and I would like to yield the balance of my time to my colleague from Hawaii, Kai Kahele.

Mr. GARAMENDI. Mr. Kahele, your turn.

Mr. KAHELE. Mahalo, Mr. Chairman, and I sincerely appreciate the time yielded to me from my colleague. Thank you so much, Representative Strickland.

I'll take this time to ask that second question I wanted to ask about Red Hill and, you know, as Secretary Berger and other members of the committee may also know that in the bill that—the appropriations bill we passed last week included \$736 million in new funding to continue to support the displaced service members, civilians, their family, to address the drinking water contamination and to comply with the State of Hawaii's emergency order.

This was in addition to \$403 million in emergency funding that was obtained a few weeks ago, bringing the Congress' total funding for Red Hill for this current fiscal year alone to over \$1.1 billion.

We know that billions more will be required to complete all aspects of the cleanup, the stabilization, the de-fueling and closing of Red Hill, and the relocation of that fuel to other fuel storage capacity locations elsewhere throughout the INDOPACOM AOR [area of responsibility].

And so my question is in the Red Hill WAI Act that was introduced, the Navy was required to reimburse the Honolulu Board of Water Supply and the Hawaii State Department of Health and Education for the enormous expenses that they have incurred as a result of this Red Hill fuel spill. I'll give you one example.

The Red Hill Elementary School, which sits less than a mile from Red Hill where several hundred elementary school students go to, in the ensuing weeks after the November fuel spill started to see their toilets at the elementary school start to leak because the fuel in the water was eroding the seals in the toilets and they had to change many of the toilets at Red Hill Elementary School.

So there's a lot of expenses out there that have not been reimbursed to the State Department of Health, Education, and Board of Water Supply.

Secretary Berger, do you believe that the Department of Defense is responsible for reimbursing the State of Hawaii and its associated State agencies and the Board of Water Supply for any costs associated with the Red Hill Bulk Fuel Storage Facility water crisis?

Ms. BERGER. Representative Kahele—

Mr. KAHELE. Could also be for Mr. Cramer as well.

Ms. BERGER. Representative Kahele, I will not speak for the Department of Defense and leave some space for that portion. But thank you for raising these specific issues.

We have been in constant communication with the Department of Health and others of the State to make sure that we are fully understanding what the costs are of Red Hill.

And so this is one that I will make sure is one that we are all aware of and accounting for. As you said, this will be expensive in terms of the full remediation, and at this point, we likely don't know all of the costs that are associated.

But this is another one that it is important to be aware of. It is on our list now. Thank you for raising it for me specifically, and it is one that we need to continue to pursue so that we understand fully all of the steps that we need to take to remediate the harm that is caused by the contamination of the water.

Mr. KAHELE. I'm sorry. Go ahead, Mr. Cramer.

Mr. CRAMER. Yeah, I'll just emphasize—yeah. So we have got a well-documented process to go through claims and reimbursements, and I think they're on the cusp of kind of going through what is the next step of remediation activities when you get beyond the initial blush and you get into the seals and the rest of those.

As you know, petroleum breaks down petroleum. So some of those things aren't going to be known for several months, and we have got a process—we have processes in place that will address those over time.

Mr. KAHELE. Yeah. It may be very probable that we may never bring the Red Hill well back online to serve the Navy's water system, which removes over 10 million gallons of fresh water from the NWS.

We may need to drill new drinking water wells or to establish new monitoring wells in that area. The Board of Water Supply is already calling for water conservation efforts for individuals in the affected area and also to plan for water restrictions during the summer.

So this is something that, clearly, is not going away. We are still distributing water at the Pearl Harbor Navy Exchange. I saw it with my own eyes the other day.

So I just want to make everyone aware that this has not gone away and it's still an ongoing crisis in Hawaii.

But thank you, Mr. Chairman, and my colleague from Washington State for the time. I really appreciate it.

Mr. GARAMENDI. Mr. Kahele, just one more comment here. The military will do what the law requires, and if you want to write the law and get the support of Congress then the military will carry it out. So we'll keep that in mind—

Mr. KAHELE. Mahalo, Mr. Chair.

Mr. GARAMENDI [continuing]. As your legislation proceeds.

The gavel order is now Mr. Moore and Mrs. McClain.

Mr. Moore, the floor is yours.

Mr. MOORE. Thank you, Mr. Chair, Ranking Member Waltz.

Mr. Cramer, I'm going to ask a question to you first on an update on where we are with respect to answering the requirement laid out in section 2679 authority, and I don't give those out lightly. I

will explain a little bit and provide some context. I don't expect every bylaw of everything ever done in the NDAA to be fully on—at the ready.

But I was given some advice by—I won't name him personally, but the chair of this committee—of this subcommittee, to keep up my passion about what we can do with our deteriorating facilities and to keep up my passion about military housing. There are private sector solutions—there are community-based solutions that can compensate for the lack of MILCON funding that we have, and we need to be willing to engage in this.

And I'm really, really passionate about it and I'm going to continue to push on it and that's what this is regards to. Section 2679 authority, written into the NDAA, it allows DOD to enter into agreements with communities noncompetitively. Colloquially, we use the term IGSA authority—intergovernmental support authority.

Again, we were able to put this into the NDAA that can accelerate construction and the repair of deteriorated facilities and infrastructure at our military installations. It requires the Secretary of Defense to present options to address scoring limitations associated with these provisions and additional options to expand this 2679 authority.

Thoughts on this, updates on this, and any thoughts on it?

Mr. CRAMER. Yes, sir. I'm familiar with its authority—2679—and used extensively within the military departments and quite well with services, and we just started in the cusp of construction, and I'll leave it up to them to get into the details.

But if there's a need within the community or the installation to expand their authority, we're all on board. I don't know that we would stand in the way.

I know there's been recent updates to extend from 5 years to 10 years—if we got to go to 20 years. In a lot of cases when you look to finance construction you want a longer period of time so you don't—you can reduce those annual payments.

And so if that's—if the period of performance has to increase then I think we're on board with that, too.

Mr. MOORE. So are on board with extending that period, because I know that's what some of our local communities are hoping for, from 1 to even 10 years.

Mr. CRAMER. Yeah, because that's the only way you're going to get the financing—they're going to be able to finance is through a longer period, and I'll leave it up to the—

Mr. MOORE. Mr. Oshiba, thoughts at all you want to share?

Mr. OSHIBA. Thank you, Congressman. We would be supportive of any proposal to extend the timeframe. I think that's one of the things we have seen in terms of limitations of using the IGSA authority.

As Mr. Cramer pointed out, some of those arrangements require just a longer period of payback.

Mr. MOORE. Okay, thanks. I'll take the chairman's advice again on putting this into law and following up on this. I think there's an enormous amount of appetite out there in our communities that serve these bases and in building that connection.

Let me continue on. Affordable housing crisis across the Nation—it's obvious. In Utah alone, 43 percent increase just in the last year.

Mr. Oshiba, I represent Hill Air Force Base, but I think this is very consistent across the country. Seventy percent of military members and their families live off military installations. They move every few years.

They receive a basic allowance for housing that does not keep up with rent prices. Consequently, many of our military members are now having to live great distances from their duty station and pay much more than they get in their BAH [Basic Allowance for Housing].

I understand current Air Force policy is to rely on the local community to satisfy these shortfalls. Can you tell me how you plan to partner with communities around Hill Air Force Base to identify needs and develop a plan together?

Mr. OSHIBA. Thank you very much for your question, Congressman.

So, coincidentally enough, I had a chance to meet with the Utah Defense Alliance earlier this month during the Association of Defense Communities. We actually talked at great length about different opportunities that we could partner, moving forward.

It is currently our policy to rely on the communities for housing in the—off the installation. But I can understand and clearly see some of the issues regarding specific locations that have experienced either housing shortages or increases in costs, particularly over the past couple of years.

There are processes in place within the Department of Defense to adjust Basic Allowance for Housing entitlements. But even given that, I do think there's an opportunity for us to partner more closely with these communities. Utah is one. Up in Fairbanks, Alaska, is another, and we actually discussed that with them as well, and we did commit to continuing that discussion to see what kind of opportunities that we can forge, going forward.

Mr. MOORE. Thank you. I know it's one of the most pressing needs for our families to be able to help cover some of these gaps. You mentioned the Utah Defense Alliance. They've been incredible to work with.

But the Utah Farm Bureau steps in and just provided a full day of service to provide some of that gap, that they're even experiencing food shortages. So this is something we have got to be able to address and I will—

Mr. CRAMER. Congressman, if you—I would just add it's the Department's policy that it's community first and it's always been not just Air Force. Let's make sure we clarify that.

And so the other—

Mr. MOORE. Very good.

Mr. GARAMENDI. Mr. Moore, I'm going to call a little gavel down on us. I know Mr.—Mr. Waltz, I know that you're going to have to leave momentarily. If you'd like to make another comment or question, and then I'll turn to Representative McClain.

Mr. WALTZ. Thank you, Mr. Chairman. I yield to Mrs. McClain so we can get her questions before votes.

Mr. GARAMENDI. Very good.

Mrs. MCCLAIN. Thank you, Mr. Chairman.

Mr. Oshiba, Selfridge Air National Guard Base, obviously, is in my district and has been competing for the future basing of next-generation fighters aircraft mission. Securing this mission would ensure Selfridge remains [an] active ongoing component of our overall national defense.

When being reviewed for these new missions, however, the base scores incredibly well in a number of areas. However, a decision in 1979 when the base still was controlled by the Air Force allowed for construction to occur in the clear zone to the south of the runway.

For the past two mission attempts by Selfridge the encroachment issue has been a key deciding factor for the base not being awarded the mission.

My question is this. Why is the Air Force not willing to recognize that a single-engine fighter aircraft, the F-16, were allowed to operate previously at Selfridge, essentially being grandfathered into the encroachment concerns, but now Selfridge is told this is a barrier that prohibits Air Force from selecting the base for any next-generation fighter aircrafts like the F-35s?

We seem to be at Selfridge always the bridesmaid, never the bride, and this seems to be, you know, the issue that everyone hangs their hat on and we'd just like some answers.

Mr. OSHIBA. Thank you very much for the question, Congresswoman. I'm not familiar with that specific issue in terms of construction in a clear zone. I do know that's a safety of flight issue that we take seriously. There are different remedies to that that we could explore, perhaps.

Mrs. MCCLAIN. But we let the F-35—the F-16 but not the F-35.

Mr. OSHIBA. Congresswoman, I'll have to take that for the record and come back with a more specific response to that specific situation.

[The information referred to was not available at the time of printing.]

Mrs. MCCLAIN. Okay. Thank you. I appreciate that. My second question would be, in layman's terms as much as possible, what does Selfridge need to actually do to be considered for a next-gen, you know, fighter aircraft mission?

Every time I ask this question I get the runaround, and if we're never going to be the bride just be honest with us so we can take our focus somewhere else. But, really, what do we need to do to prepare ourselves to actually secure a flying mission?

Mr. OSHIBA. Congresswoman, that's a—that's probably something I would love to sit down with you and discuss. You know, I think you're familiar with our strategic basing process and the criteria that we use in order to evaluate candidates for a new mission.

Mrs. MCCLAIN. But the issue for us and the frustration part for us, with all due respect, sir, is it changes. So I would welcome the opportunity to sit down and talk with you on both of those questions because, again, the community gets excited, you know, the base gets excited, and then the rules of the game change.

And although I'm not happy about not having a flying mission, that's clearly what we want. I think we need to have some honest

and tough answers and some honest and tough dialogue on Selfridge Air Force Base because for far too long, like I said, we're just tired of being the bridesmaid, never the bride, and we got to change that or we got to move directions differently.

Mr. OSHIBA. Ma'am, it's—we pride ourselves on the fact that the strategic basing process should be clear, transparent, and consistent, and, apparently, we have not communicated that well with you and that's something we will strive towards. And, again, if it means that I need to come sit down with you and walk you through some of those specifics to that flying mission I'd be happy to do that.

Mrs. MCCLAIN. I'm here all week. Thank you, sir.

With that, I'll yield back.

Mr. GARAMENDI. Thank you very much, Mrs. McClain.

I believe we have run through all of the questions from the members. If that is incorrect, let me know or let the staff know.

With regard, Mr. Moore, your issue on housing is on all of our minds. With regard to privatized housing or on base, there is this little problem called scoring, and until we figure out how to deal with scoring where the Budget Committee seems to think that a privatized program somehow is a cost to the military, we're going to have to figure that out and get past that. Otherwise, you're not going to make much progress. But your legislation will be of great assistance in that.

Mr. Kahele, carry on. Write the law, get the President to sign it, and I'll guarantee that the military will follow along to provide whatever support the State of Hawaii and the communities need there. I will work with you on that.

There are a series of other questions that we didn't get to at this hearing. But we're definitely going to follow up.

I do want to comment on the issue that Mr. Scott raised having to do with the question of electrical power being available in the field. Absolutely appropriate question. The same thing applies to petroleum energy, and you might talk to the Russians about why their convoy was so long held up. The general thought is that it was for lack of fuel.

And so, Mr. Waltz, you raised this question at the outset and that, too, is part of this equation.

Going forward, I want to, before I close it up, I don't know of any other member that has not had an opportunity and Mr. Waltz has now left the committee.

So with that, I want to thank our witnesses.

Mr. Cramer, thank you very much for overseeing the departments and their efforts to deal with the energy, the installation issues, and also the environmental issues, all of which have been brought to the attention of the committee today.

Mr. Farnan, thank you for leading, providing the pacing for your fellow departments, and we'll let them catch up to the Army on the energy installation and the climate strategies that they will follow along. You've given them the pacing, correct?

Ms. Berger, thank you. You were very forthcoming to answer Mr. Kahele's questions. There are a host of others that we'll come back to you on that are in—that I have been plagued with, like, what in the world are we going to do with the public shipyards and when

will we get them up to date, and also the Navy's ability to properly schedule the availability in those shipyards.

Mr. Oshiba, I still don't know why we rebuilt a facility that we know is going to get slammed again. You provided some detail in your testimony about the two bases that were mentioned earlier today and we'll want to follow that along.

And for all of you, as we go forward on the installations, think about energy conservation. A one percent decrease in the fuel consumption by the Department of Defense takes 70,000 cars off the roads of America.

So there are thoughts here that we can pursue.

With that, I want to thank the witnesses. I want to thank the participation of the committee. I, particularly, want to thank Jeanie [Jeanine], who I see sitting there at the dais. Thank you so very much for the staff work that went into this, both minority and majority staff. Thank you.

And with that, this hearing is ended. Thank you so very much.
[Whereupon, at 3:29 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 16, 2022

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 16, 2022

Statement of the Honorable John Garamendi
Chairman, Readiness Subcommittee
“Energy, Installations, and Environment Program Update”
March 16, 2022

First, some administrative and technical notes. Members are reminded that they must be visible onscreen within the software platform for the purposes of identity verification. Members must continue to use the software platform’s video function while attending the hearing unless they experience connectivity issues or other technical problems that render the member unable to fully participate on camera. If you experience technical difficulties, please contact the committee staff for assistance.

When you are recognized, video will be broadcast via the television and internet feeds. You will be recognized as normal for questions, but if you want to speak at another time you must seek recognition verbally. Please mute your microphone when you are not speaking and remember to unmute prior to speaking. Please be aware that there is a slight lag between when you start speaking and when the camera shot switches to you. Please remember to keep the software platform’s video function on for the entirety of the time you are attending this hearing. If you leave for a short period for reasons other than joining a different proceeding, please leave your video function on. If you are leaving to join a different proceeding or will be absent for a significant period of time, you should exit the software platform entirely and then rejoin if you return.

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Good afternoon.

Ladies and gentlemen, I call to order this hearing of the Readiness Subcommittee of the House Armed Services Committee.

Today’s witnesses oversee a wide range of programs of considerable interest to this subcommittee. The last several NDAA’s have included significant reforms on issues related to installation resiliency, privatized military family housing, the treatment of emerging contaminants, sustainment of military infrastructure, energy resiliency, and climate change. Today we will receive testimony from these witnesses on the Department’s progress on executing these reforms.

Of these topics I am particularly focused on two areas. First, the chronic failure of the military departments to adequately maintain quality of life infrastructure such as barracks, dormitories, and child development centers. For years, I have sat in these hearings and listened to you and your predecessors across multiple administrations tell us that you have chosen to take risk to the detriment

of our service members by underfunding, under-maintaining and delaying recapitalization of quality-of-life infrastructure. While you are comfortable with this risk, we are not. Over the years you have told us that barracks and child development centers just don't compete well in the budget process. The inadequate annual investment does not match the lip service from your service secretaries about the importance of service members and their families. In the FY22 NDAA, we got tired of waiting for you to make good on your promise to make service members a priority and took some of your ability to take risk away. The FY22 NDAA forces the military departments to allocate a fixed percentage of facilities sustainment and renovation funds to unaccompanied housing. Combined with nearly annual congressional plus-ups of the related budget lines, the forced emphasis on these facilities will start to remedy a problem you have proven incapable of fixing on your own. I know it will require an adjustment in your thinking, but I am confident that your operational needs will continue to compete favorably while our service members finally start to see relief from the poor and failing conditions they have been forced to endure.

My second focus is on the issue of resiliency and demand reduction. While there are those of us who believe that mitigating climate change is an end in itself, the idea that these measures are inherently detrimental to our readiness and lethality is simply untrue. This dangerous false dichotomy prevents us from taking a clear-eyed look at how to evolve our platforms and our installations to succeed in an environment of near-peer competition. We know that demand reduction is necessary to address our contested logistics challenges, both in the Pacific with its oceanic tyranny of distance and in more terrestrial areas of operations. This was true in the Pacific in World War II, and we are watching this issue play out in Ukraine with Russian convoys. While supply is part of the answer it can only take us so far. Logistics lines will always be targeted and tactical vehicles that use less help us lengthen the tether our fighting forces have to resupply and extend their reach and on-station time. I applaud the Army for its recently released climate strategy, that seeks to transition our tactical vehicle fleet away from a sole reliance on fossil fuels and look forward to hearing more about how the Army will execute this vision while remaining the world's premier fighting force.

Installation resiliency remains a key focus to ensure our military bases can continue to perform their critical missions in the wake of natural disasters or disruptions to the grid. I strongly support the Department's transition to non-tactical electric vehicles. Not only will those vehicles lower the Department's carbon footprint, but if we pair them with the right support infrastructure, they can become another source of resilient power for critical missions. I look forward to hearing about the Department's progress on energy and water master plans as well as the full installation master plans we mandated in FY20.

Finally, we must look at our critical missions outside of the continental United States as well. One of the most extreme examples of the need for effective climate and energy resiliency planning can be found on Kwajalein atoll. The atoll

is already experiencing sea level rise-fueled high surf that will lead to increasingly frequent over-wash events that destroy freshwater supplies and infrastructure. This is not a concern of the distant future, but something we could see as soon as 2030. In addition, although the atoll is almost completely dependent on outside liquid fuel sources for energy, nothing has been done to increase conservation and resiliency to mitigate that vulnerability. With the critical missions performed on Kwajalein, these two issues combine to make it a compelling test case for installation resilience master planning, and readiness-focused energy conservation measures.

I look forward to hearing the witnesses talk about their work in these areas as well as providing an update on these and the myriad other topics of mutual interest over the next two hours.

With that, I would like to turn to our Ranking Member, Congressman Mike Waltz of Florida, for any remarks he may have.

HOLD UNTIL RELEASED
BY THE COMMITTEE

**Statement of
Mr. Paul Cramer
Performing the Duties of
Assistant Secretary of Defense
(Energy, Installations & Environment)**

**Before the House Committee on Armed Services
Subcommittee on Readiness**

**Department of Defense
Energy, Installations & Environment Programs**

March 16, 2022

INTRODUCTION

Chairman Garamendi, Ranking Member Waltz, and distinguished members of the Subcommittee: Thank you for the opportunity to discuss the Department of Defense's (DoD) energy, installations, and environment programs.

Our installations remain one of our primary weapon systems. For nearly 80 years, we have been able to operate from our bases around the world with near-impunity, which has afforded us unprecedented power projection capabilities. However, the stark reality is that the homeland is no longer a sanctuary. Therefore, we must ensure that our installations are not only postured to support the Joint Force, but that they are resilient against the full range of man-made and natural threats. We continue to address these resilience challenges, while also addressing mission requirements and ensuring Service members have a safe and resilient place to live and work.

Reestablishment of EI&E

As part of the larger reorganization within the Under Secretary of Defense for Acquisition & Sustainment, the Office of the Assistant Secretary of Defense for Energy, Installations & Environment (EI&E) was merged with Office of the Assistant Secretary of Defense for Logistics & Material Readiness (L&MR) into the Assistant Secretary of Defense for Sustainment in 2018. While there were benefits in bringing these two portfolios under a single organization, the breadth of the merged portfolio required the leadership team to focus on a narrower set of priorities at the expense of other, equally important priorities.

Recognizing that each portfolio warranted an Assistant Secretary-level oversight, Section 904 of the FY2021 NDAA restored EI&E as a distinct organization. The Department formally split EI&E and Sustainment on February 10, 2022. We appreciate Congress's support in ensuring that the Department has the senior visibility needed for us to effectively confront the energy, environment, military construction, housing, and real property challenges we face.

TAKING ACTION ON CLIMATE CHANGE

Secretary Austin noted that the Department faces a "growing climate crisis that is impacting our missions, plans, and capabilities and must be met by ambitious, immediate action." As such, climate change will continue to amplify operational demands on the force. It will degrade installations and infrastructure, increase health risks to our service members, and require modifications to much of our existing and planned equipment. The Biden Administration, through Executive Order (EO) 14008 "Tackling the Climate Crisis at Home and Abroad" and Executive Order 14057 "Catalyzing Clean Energy Industries and Jobs through Federal Sustainability," places climate change at the center of the Department's national security planning and our installation and business operations. To do this the Department will take steps to adapt to the unavoidable impacts of climate change to our missions, while also working to mitigate the future effects of climate change by taking steps to reduce emissions of greenhouse gas emissions (GHG).

Climate Change Adaptation

The effects of climate change—drought, heat, forest fires, and extreme weather events—are already costing the Department billions of dollars. These costs will only increase as climate change accelerates. To address this, the Department is taking a number of actions to improve our adaptive capacity, centered around the DoD Climate Adaptation Plan (CAP), which was signed by the Secretary of Defense on September 1, 2021 and publicly released by the White House on October 7, 2021. Actions under the Plan will ensure the DoD can operate under changing climate conditions, preserving operational capability and enhancing the natural and man-made systems essential to the Department’s success. To do so the CAP takes an expansive approach to the concept of adaptation, seeking to integrate climate resilience thinking across all agency programs and real property management practices. A companion document providing highlights and examples of the Department’s climate adaptation efforts was released in November 2021.

Supporting this effort is the Defense Climate Assessment Tool (DCAT), which was developed to assist in understanding installation climate exposure. Outputs from this tool can be used to inform development of an “all hazards” threat assessment for installations and subsequently be incorporated into master plans and military construction projects. A summary of these exposures was presented in the April 2021 report, “DoD Installation Exposure to Climate Change at Home and Aboard.”

Climate Change Mitigation

The entire nation faces broad exposure to the mounting risks caused by climate change which pose an existential threat if left unmitigated. Recognizing this, the Department is committed to reducing its GHG emissions through a variety of efforts. We are committed to ensuring net-zero GHG emissions across our entire civilian enterprise – our installations, non-tactical vehicles and procurement efforts, by or before 2045. While significantly more challenging, we are also working to reduce emissions throughout our operational forces and formations by deploying new technologies which concurrently add capability and reduce vulnerabilities in an era of contested logistics. These efforts are aligned with the 2021 Interim National Security Strategy Guidance which calls for accelerated growth in renewable energy deployment, investment in climate-friendly infrastructure, resilience to climate change, energy grid modernization, and international leadership by the United States.

Across DoD’s “corporate” enterprise we are engaged in a number of specific initiatives. First, in concert with the General Services Administration DoD was the first Federal agency to initiate procurement actions aiming to obtain 24/7 Carbon Pollution Free Electricity, with the intention to transition all of DoD’s utility procurement to this model by 2035. Second, we are leveraging the prominent role that installation micro-grids will play in our installation energy resilience efforts, which will allow for significant deployments of on-site renewable power. Third, we are updating all Unified Facilities Criteria to dramatically improve the energy performance of newly-constructed buildings and designing them to easily operate within an installation micro-grid. And finally, the Department has begun the planning and design efforts to deploy the charging infrastructure essential to transition our non-tactical vehicle fleet to one that does not rely on fossil fuels, with the aim of having this transition complete by 2035.

Integrating Climate Mitigation Considerations into DoD Procurement

While the Department has procured sustainable goods and services for many years, we are now taking steps to address greenhouse gas emissions embedded in our supply chain. We have begun acquiring information and data that will eventually allow us to accurately track and account for GHG emissions across the totality of the Department's activities. The Department issued a request for information on July 8, 2021 with questions related to the implementation of sustainability initiatives in Executive Order 14030, Climate-Related Financial Risk, including disclosure of greenhouse gas emissions; environmental, social, and governance; and supply chain greenhouse gas and risk management. More recently DoD issued a combined sources sought/request for information on December 30, 2021 seeking information from industry regarding potential upcoming requirements and a draft scope of work to account for supply chain emissions from DoD procurement.

ENVIRONMENTAL PROGRAMS

Installations are key platforms for our nation's defense. We must maintain our ability to conduct realistic training and flexible operations. The Department's environmental investments (~\$3.6 billion/year) support this objective through activities ranging from managing critical habitat and avoiding training restrictions to addressing drinking water health advisories and making the best use of our cleanup dollars.

Defense Environmental Restoration Programs

The Department's environmental cleanup program includes the Installation Restoration Program (IRP) and Military Munitions Response Program (MMRP). The IRP is focused on cleanup of hazardous substances, pollutants, and contaminants, while the MMRP is focused on responding to unexploded ordnance and munition constituents at former military ranges. These programs encompass active installations, Formerly Used Defense Sites (FUDS – sites that DoD transferred to other Federal agencies, States, local governments, or private landowners before October 17, 1986), and sites DoD transferred to other entities as part of its Base Realignment and Closure (BRAC) activities.

Progress Towards Cleanup Goals

Goal: Achieve Response Complete at 90% and 95% of Active and BRAC, IRP, and MMRP sites, and FUDS IRP sites, by FY 2018 and FY2021, respectively			
	Status as of the end of FY2020	Status as of the end of FY2021	Projected status at the end of FY2022
Army	91%	91%	92%
Navy	83%	84%	84%
Air Force	85%	85%	85%
DLA	84%	85%	85%
FUDS	88%	89%	89%
Total	87%	88%	88%

To date, the Department, in cooperation with State agencies and the Environmental Protection Agency, has completed cleanup activities at 88 percent of Active and BRAC, IRP, and MMRP sites, and FUDS IRP sites, and is now monitoring the results. During FY2021 alone, the Department completed cleanup at 226 sites. Of the roughly 40,100 restoration sites, more than 34,100 are now in monitoring status or have completed cleanup.

Our focus remains on continuous improvement in the restoration program: minimizing overhead, adopting new technologies to reduce cost and accelerate cleanup, refining and standardizing our cost estimating, and improving our relationships with State regulators and affected communities through increased dialogue. All of these initiatives help ensure that we make the best use of our available resources to complete cleanup.

While the Department continues to make progress on completing cleanups, the remaining sites are some of the most complex cleanup sites. Chemicals of Emerging Concern and others like per- and polyfluoroalkyl substances (PFAS) may cause DoD to readdress previously-made decisions, which may cause delays in achieving our cleanup goals. Additionally, some complex sites have no feasible solution for cleanup and, as a result, the Department is making significant investments in environmental technology to identify new potential remediation methods.

Per- and Polyfluoroalkyl Substances

The presence of per- and polyfluoroalkyl substances (PFAS) in the environment is a national issue due to its wide-spread use in many industrial and consumer products. The Department recognizes the importance of this issue and is committed to addressing PFAS in a deliberative, holistic, and transparent manner. The Department established a PFAS Task Force in July 2019 to provide strategic leadership and direction on DoD-wide efforts. The Task Force continues to focus on four main goals:

- Mitigating and eliminating the use of the current aqueous film forming foam (AFFF);
- Fulfilling our cleanup responsibilities
- Understanding the impacts of PFAS on human health, and
- Expanding PFAS-related public outreach

Over the last year, the Department has made notable progress in these areas; for example:

- All installations identified by the Department as locations where PFAS may have been used or potentially released, are under investigation.
- DoD has hosted three quarterly virtual PFAS Public Outreach meetings, and is planning additional senior leader engagements.
- DoD's research and development efforts contributed to a new draft EPA analytical method used to evaluate PFAS in media other than drinking water and includes the ability to sample for 40 different PFAS.
- Significant progress has been made in developing a draft of the new Military Specification for PFAS-free replacement to AFFF.
- The Military Departments are evaluating available technologies, in addition to alternative foams, to replace current AFFF systems in facilities in order to develop comprehensive plans for the transition to PFAS-free alternatives.

AFFF Replacement Research

AFFF formulations in use by DoD today contain at most trace amounts of PFOS or PFOA, but they still contain other PFAS. We have an aggressive initiative to develop and demonstrate PFAS-free alternatives for AFFF. A number of commercially-available and developmental PFAS-free alternative formulations have been demonstrated to achieve acceptable fire extinguishment performance against jet fuel fires. DoD has completed evaluations of the shelf life, materials compatibility, and general toxicity of these formulations and the Navy is using the results to develop a new Military Specification for a PFAS-free firefighting alternative.

PFAS Cleanup and Drinking Water Mitigation

DoD follows Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the long-standing EPA regulations for all chemicals in our cleanup program, including PFAS. The Defense Environmental Restoration Program statute provides authorities to DoD to perform and fund cleanup actions and requires they be carried out in accordance with CERCLA.

As of December 31, 2021, the Department has completed the initial assessment at 224 (of 700) installations and of those, 80 were found to require no further action, while 144 are proceeding to the next step in the CERCLA process. During these initial assessments, DoD evaluates both groundwater and drinking water. If DoD identifies PFOS and/or PFOA from DoD activities in off-base drinking water above EPA's lifetime Health Advisory (HA), we quickly take action (i.e., a CERCLA removal action) to provide treatment or an alternative water source.

In addition, as part of our normal operations, the Department has sampled over 500 on-base DoD drinking water systems worldwide. Of those, we identified 36 with PFOS and/or PFOA above EPA's drinking water HA and took quick action to bring those systems below 70 parts per trillion (ppt). Where DoD is the known source of PFOS and/or PFOA in drinking water, DoD has taken steps to ensure that no one is drinking water above EPA's HA of 70 ppt.

PFAS Public Outreach

The DoD is committed to expanding our outreach efforts as we continue to address PFAS. One example is through quarterly public outreach events hosted by senior officials. As part of these events, we solicit questions and provide responses that are posted on our DoD PFAS website. In addition, we are continuing to update our existing website with installation-specific drinking water and groundwater results, while developing a more robust interactive and user-friendly website.

Native American Lands Environmental Mitigation Program

The Native American Lands Environmental Mitigation Program (NALEMP), codified under the FY2021 NDAA, addresses environmental effects of Department actions on Indian lands and on other locations where the Department, an Indian tribe, and the current land owner agree that such

mitigation is appropriate. These environmental effects are typically associated with hazardous materials, munitions debris, underground fuel storage tanks, unsafe buildings, lead-based paint and asbestos, and abandoned equipment. Most Indian lands are located in rural and remote areas with low population densities; thus, they might not qualify as high priority sites under the Department's more limited environmental restoration programs. The NALEMP seeks to bridge the gap between Tribal needs and these traditional risk-based environmental restoration programs and incorporate Tribal priorities to address potential impacts to Indian lands. The goal of the NALEMP is to complete mitigation of sites by restoring health and human safety, protecting natural resources, protecting cultural resources, and returning tribal lands to optimal use.

Under the NALEMP, the Department supports government-to-government relationships with Tribes through a Memorandum of Agreement and then enters into two-year Cooperative Agreements (CAs) with the Tribal governments. Funding provided through CAs enables Tribal governments to lead NALEMP projects, incorporate "traditional ecological knowledge" into design for cleanup, and build Tribal capacity regarding environmental services and technical remediation skills. Tribal governments conduct the cleanup with technical assistance and mentorship from the DoD and the U.S. Army Corps of Engineers.

To date, ninety-four sites in the lower 48 states and Alaska have been fully mitigated. Ninety percent of the 1,100+ potential Tribal impacts reported to the Department have been assessed and 292 have been found eligible for NALEMP or are under review. In FY2021, the Department executed a total of 15 NALEMP CAs, of which 10 CAs were with Alaska Native tribes and five with Indian tribes in the lower 48. By the end of FY2022, the Department will execute an additional 13 CAs, of which 10 CAs will be with Alaska Native tribes and three Indian tribes in the lower 48 states.

Environmental Justice

The Department fully supports the Administration's efforts to take a more active Federal role to address Environmental Justice (EJ). Since 1954, the DoD has led the charge in breaking down social barriers and was the first federal organization to integrate, bringing soldiers together across racial, social, and ethnic backgrounds. We have also long recognized the importance of environmental stewardship and championed innovative active duty and civilian service members who make strides in conserving our nation's natural and cultural resources, protect human health, reduce pollution, and incorporate environmental requirements into weapon system acquisition. In 1994, the Department fully embraced Executive Order (EO) 12898 and implemented an EJ Strategy and Principles that addressed enhancements to community engagement and Tribal consultation, environmental planning, and implementation processes including clean-up and restoration activities.

With newly-issued EOs (13985 and 14008), the Military Services have been proactive in revising their policies and guidance to improve early engagement with disadvantaged communities and consultation with Tribal Nations as a result of federal actions. In partnership with the Council on Environmental Quality and other Federal agencies, we have developed tools that will enhance our mapping and analysis of climate change impacts to communities, and developed a strategic

framework for achieving climate change adaptation and resilience that address 5 lines of effort, including EJ. The Department is fully prepared to continue to address EJ by ensuring equality in our investments in military families and communities, implementing top-down training for service members and civilian specialist in EJ literacy, strengthening government-to-government relations with Tribal Nations, and by leverage existing public-private partnerships to support infrastructure and environmental enhancements in communities adjacent to the Department's installations. The Department believes that we can sustain the defense mission while building trust and community resiliency through partnerships that safeguard healthy, secure, and vibrant natural and human environments for our neighbors, our Service members, and their families."

Environmental Conservation and Compatible Development

The Department's lands and waters, or "natural infrastructure," are vital to readiness. It is imperative that the Department take significant and immediate action to ensure the resilience of our natural infrastructure to projected impacts of climate change, and orient our planning and program implementation to adapt to future climate conditions. Additionally, DoD lands contain significant resources supporting our nation's natural and cultural heritage, including resources important to Native American tribes and Native Hawaiian Organizations. DoD lands provide habitats for over 500 plant and animal species that are federally protected under the Endangered Species Act, over 130,000 recorded archaeological sites, and 45 National Historic Landmarks. Our Conservation program allows us to manage these resources in compliance with applicable federal statutes, and manage for healthy and resilient natural landscapes to reduce climate driven risks such as flooding and wildfire.

Regulatory protections related to threatened and endangered species and their habitats continue to pose significant mission challenges by restricting use of our existing ranges and training areas, or limiting our development of new infrastructure. However, these investments in conservation are making significant progress towards alleviating these restrictions by promoting species recovery. Through the Recovery and Sustainment Partnership (RASP) with the Department of the Interior and US Fish and Wildlife Service, DoD has worked to identify priority species and conservation actions which has resulted in significant improvements to species recovery and conservation, regulatory efficiencies, and mission flexibility. We will continue to work with our federal, state and non-governmental partners through the DoD Legacy Resource Management Program to build on these successes and contribute, as appropriate, to the priorities of the Administration's Restoring American the Beautiful Initiative.

In the next two decades, approximately 80% of the current DoD inventory will reach 50 years of age and need to be evaluated for listing on the National Register of Historic Places. In order to manage the aging real property assets on installations, DoD is engaging with the Advisory Council on Historic Preservation to develop new nationwide programmatic solutions to streamline compliance responsibilities for specific categories of buildings. With a continued investment in the program, the efforts will reduce the time and cost of consultation with stakeholders when installations need to make repairs, renovations, or demolitions to buildings that fall within the parameters of the program.

Additionally, developing and implementing climate adaptation and resilience into both the natural and cultural resource programs will be a priority moving forward. Using the data and information currently available through the Defense Climate Assessment Tool (DCAT) and emerging adaptation planning guidance related to natural and cultural resource management programs, the DoD will be evaluating the use of nature-based solutions, and sustaining our natural infrastructure to address climate driven risks such as restoring salt marshes or wetlands to reduce flood risk, or altering forest management practices to reduce fire risks.

Continued investments in conservation will maximize our flexibility to use our land, water, and airspace for military purposes and to address incompatible land uses beyond our fence lines, and will ensure that our military and civilian personnel have the access they need to conduct mission-essential activities. Strategies to address these conservation and climate adaptation priorities can be most effective through landscape-scale initiatives to better capitalize on both our on-installation conservation programs and our off-installation conservation partnerships through the Readiness and Environmental Protection Integration (REPI) Program.

The Readiness and Environmental Protection Integration (REPI) program

The REPI program safeguards military missions by limiting incompatible development, protecting critical habitats, and promoting climate change adaptation surrounding installations and ranges. REPI uniquely supports DoD's ability to seamlessly operate across domains by stimulating mutually beneficial and cost-effective partnerships between local communities, federal and state agencies, and non-governmental organizations. Through FY2021, DoD has leveraged \$1.18 billion with over \$1.05 billion in non-DoD partner contributions – nearly a 1:1 match – to protect nearly 830,000 acres of land across 118 installations in 35 states and territories.

The REPI program has been identified in the CAP as one of the key tools that will be used to create resilient natural infrastructure solutions near installations and enhance climate adaptation through collaboration. Natural infrastructure solutions encompass a wide range of possible actions that can help promote installation resilience, preserve access to critical installation and range assets and capabilities, and enhance DoD's core training, testing and operational missions. The REPI program is expanding resilience opportunities for installations by building capacity across key areas of strategic importance, including the Indo-Pacific region, and promoting interagency coordination with complementary resilience programs, such as the Federal Emergency Management Agency's Building Resilient Infrastructure and Communities Program and the National Fish and Wildlife Foundation's National Coastal Resilience Fund. By collaborating on climate change projects with dedicated partners, the REPI program can accelerate project outcomes to defend national security, maximize taxpayer benefits, and support sustainable land management practices.

REPI continues to increase investments in natural infrastructure solutions and prioritize projects that will ensure the Department can operate under changing climate conditions. In FY2022, the Military Departments in partnership with state and local government entities and non-governmental organizations requested \$171 million in REPI funding for executable off-base climate resilience projects. Within the limits of the Continuing Resolution, the REPI program is

seeking to initiate these nature-based improvements and prioritizing available funding to establish the necessary capacity to effectively plan, design, and monitor these climate resiliency projects to preserve critical mission capabilities.

One interagency partnership the REPI program is continuing to support is the Sentinel Landscapes Partnership between DoD, the U.S. Department of Agriculture, and the U.S. Department of the Interior. The Partnership promotes shared land use priorities, and works to identify landscapes across the country where the missions of the federal agencies – strengthening national defense, promoting sustainable agriculture and forestry, and building community resilience to climate change – intersect. From FY2012 to FY2020, projects across sentinel landscapes have leveraged roughly \$178 million in DoD funds and attracted \$657 million in funds from federal, state, local, and private partners to advance the goals and shared land use priorities of the seven sentinel landscapes. In FY2022, the Partnership expanded the number of landscapes from seven to ten, adding the Camp Bullis Sentinel Landscape in Texas, the Northwest Florida Sentinel Landscape, and the Southern Indiana Sentinel Landscape. These three new sentinel landscapes will protect missions at 14 key DoD installations and ranges, secure working and agricultural lands, and strengthen installation resilience to climate hazards.

Military Aviation and Installation Assurance Siting Clearinghouse

The Military Aviation and Installation Assurance Siting Clearinghouse continues to protect the Department's ability to train, test, and operate as the nation expands its renewable and other commercial energy and power transmission capacity. Commercial wind development typically poses the greatest compatibility challenge to DoD due to physical obstruction of low-level flight routes and electromagnetic interference with DoD radar systems. DoD resolved project concerns through collaboration between the Clearinghouse, the Military Departments, local communities, States, and energy developers, thereby maintaining the Department's ability to train, test, and operate while enabling development of alternative energy resources. The Clearinghouse negotiates Mitigation Agreements with wind energy developers to minimize the impacts from proposed projects on DoD missions.

The Department works with the Department of Interior, the Bureau of Ocean Energy Management (BOEM) and States to create plans that support aggressive new offshore energy development goals. The Department works with its Federal, State and industry partners at every stage of planning, permitting, and development. In 2021, DoD worked on a solution that allows BOEM to plan towards 3GW of wind generation off the coast of Central California. While any project in the area would negatively impact DoD operations, the White House Climate Office, DOI and California agreed to seek long-term protections against further development in the area. This compromise supports domestic renewable energy goals while providing long-term protections for military operations.

The Department is actively implementing new approaches to protect DoD missions. The Clearinghouse intensified efforts to advocate for state-level legislation to protect military installations and operations from incompatible wind energy development. Oklahoma, Indiana, Wyoming, and Alabama have passed protections for military missions in wind turbine permitting. Although DoD and developers have had success resolving issues related to

incompatible energy development, state support is invaluable in the rare cases where developers choose not to voluntarily coordinate with DoD.

MILITARY CONSTRUCTION AND FAMILY HOUSING

The Department's Military Construction program addresses critical mission requirements as well as life, health, and safety concerns. These efforts directly support operations, training, maintenance, production, and projects to take care of our people and their families, such as medical treatment facilities, unaccompanied personnel housing, and schools.

The Department continues to make progress on its Military Construction Reform initiative. We are in the process of codifying the roles and responsibilities of the major stakeholders involved in construction projects to enable the consistent delivery of projects across the DoD. Additionally, a forthcoming data management policy will ensure that components that are sponsoring projects and the DoD Construction Agents that are executing them are sharing information about critical details such as project requirements, acquisition timelines, and construction status to ensure that components make proactive decisions on projects and manage scope and cost changes with minimal impact to project delivery.

Facilities Sustainment Restoration and Modernization

Facilities sustainment represents the Department's largest category of facilities spending. It provides for the regularly scheduled maintenance and repair or replacement of facility components. These ongoing and predictable investments must be made throughout the service life of a facility to optimize its performance and support the safety, productivity, and quality of life of our personnel, while also reducing avoidable costs associated with premature deterioration. In addition to facilities sustainment funding, the Department relies upon its Restoration and Modernization (R&M) program funding to provide ongoing support to assigned missions by countering obsolescence and reversing degraded conditions of existing facilities.

Historically, the Department has managed the budgeting for sustainment of assets at the portfolio level with a sustainment model. This model, however, relies on an inventory approach to requirements development, which does not directly align asset investment requirements to expenditures. OASD(EI&E) has been maturing a tool that helps capture facility inspection data. The system not only considers the asset's condition, but also individual components that make up those assets to provide a much more granular assessment of the entire facility. It is guiding our transition to an asset management approach for budgeting for and managing the Department's infrastructure that addresses facility investment as a holistic program instead of independent sustainment, restoration and modernization programs. As the system is implemented over the next few years, the Department intends to set baseline parameters using factors such as mission criticality to set a minimum condition standard on its facilities.

Family and Unaccompanied Housing

One of the Department's principal priorities is to support military personnel and their families and improve their quality of life by ensuring access to suitable, affordable housing. Service members are engaged in the front lines of protecting our national security and they deserve the best possible living and working conditions. Sustaining the quality of life of our people is crucial to recruitment, retention, readiness, and morale.

In addition to privatized housing, the Department owns, operates, and maintains nearly 36,000 family housing units, most of which are on enduring bases in overseas locations, and leases approximately 5,200 family housing units where government-owned or privatized housing is unavailable. The Department's housing inventory also includes more than 500,000 government-owned unaccompanied personnel housing (UH) bed spaces, and over 2,000 government-leased UH bed spaces.

The Department remains committed to ensuring that our government-owned and leased family housing provides a high quality of life for U.S. military personnel and their families, and will continue our efforts to modernize and ensure safe, quality unaccompanied personnel housing with improved privacy and greater amenities for junior personnel.

Military Housing Privatization Initiative (MHPI)

Under the overall direction the Chief Housing Officer, the Department has made significant progress to enhance the Military Housing Privatization Initiative (MHPI) and our oversight of the private sector MHPI companies that own and operate MHPI housing projects.

Central to this oversight, the Department has issued all policy guidance necessary to implement, prospectively, all 18 tenant rights at all MHPI housing projects. This include a revised Tenant Bill of Rights, which was issued on August 1, 2021 and expands the version previously submitted to Congress in February 2020.

As Congress has recognized, retroactive application of the Tenant rights requirements at existing projects requires voluntary agreement by the respective MHPI companies; the Department cannot unilaterally change the terms of the complex, public-private partnerships that established the MHPI housing projects. As a result of our collaboration with the private-sector MHPI companies that own and operate the MHPI housing projects, all 18 rights are fully available at all but five of the nearly 200 installations with privatized housing. The Department continues to pursue select agreements not yet reached at the five remaining installations.

Our other key completed initiatives include strengthening oversight through improved training; reinforcing installation commander responsibilities; establishing a Deputy Assistant Secretary of Defense for Housing; hiring more than 600 housing-related staff including resident advocates and increasing training; improving communication with residents and the annual tenant satisfaction survey; ensuring increased transparency and reporting of maintenance and repair work orders; revising project performance incentive fee metrics; establishing housing standards

and inspection requirements; establishing policies and procedures for health hazard assessments and mitigation; and expanding MHPI project and program oversight at all levels.

Our next phase of MHPI reform actions will continue to prioritize key reforms that will improve the safety, quality, and habitability of privatized housing; enforce performance standards established for the MHPI companies; and monitor individual MHPI project performance to ensure the long-term financial viability of the MHPI projects and program. These efforts include examining ways to improve processes to enhance the housing experience for military families who have accessible housing needs and improving coordination with the Exceptional Family Member Program.

The Department of Defense understands that family is important and honors the sacrifice that military members and their families make to serve our Nation. We recognize that the environment where Service members and their families live impacts their quality of life, their ability to do their jobs, and the Department's ability to recruit and retain the force.

We are committed to working closely with you and the committee staff to ensure the long-term success of the MHPI program, and will remain diligent in our oversight to ensure MHPI projects deliver quality housing and a positive living experience for Service members and their families.

DEPARTMENT OF DEFENSE ENERGY PROGRAMS

Threats to Energy

Energy is an essential enabler of military capability, and the Department depends on energy-resilient forces, weapon systems, and facilities to achieve its mission. At home and abroad, installations are reliant on commercial, municipal, and host nation power grids for day-to-day operations, including command and control systems, communications, lighting, heating, and cooling. Similarly, the Department relies on organic capabilities and commercial partners to provide refined petroleum products to globally deployed forces and maximizes the use of local sources to minimize the time, resources, and effort associated with acquiring, moving, and delivering fuel to deployed forces.

Adversaries recognize the strengths of U.S. power projection and sustainment, and possess long-range weapons, significant anti-access/area-denial (A2/AD) systems, and substantial cyber capabilities able to degrade the Department's ability to provide energy to forces and facilities. In response to these threats and in alignment with statute, the Department shall "ensure readiness of the armed forces for their military missions by pursuing energy security and energy resilience" (10 U.S.C. § 2911) and "ensure the types, availability, and use of operational energy promote the readiness of the armed forces" (10 U.S.C. § 2926).

In addition, the Department's ability to provide energy to critical missions is affected by the climate. For instance, floods, storms, and other severe weather can degrade energy generation and distribution infrastructure on our installations, as well in the surrounding communities. In fact, severe weather can degrade supply chains beyond energy, with "last-mile" delivery systems

for a range of mission critical commodities, goods, and services being particularly at risk. Therefore, climate resilience must be built into the supply chain as well, and the Department must ensure that key suppliers and industries can still operate though impacted by climate change, with special attention given to “last-mile” resilience.

The President and the Secretary of Defense have directed the Department to ensure installations and forces are resilient to all hazard risks – kinetic, cyber, and climate – and that the use of energy promotes the readiness of the armed forces for their military missions. In response, the Department is making significant energy investments in both operational energy (the energy required for training, moving, and sustaining military forces and weapons platforms for military operations) and installation energy (the energy used to power permanent installations and non-tactical fleet vehicles). Enhancing energy resilience and reducing energy demand are essential to achieving Joint lethality, supporting distributed operations, and reducing risks to sustainment in contested environments.

In support of operational energy resilience, the Department is adapting our decision-making processes, upgrading and procuring new vehicles and aircraft, increasing the range and endurance of platforms, and executing wargames that account for increasing risks to logistics and sustainment. As the Department prepares to operate in contested environments around the globe, these initiatives and investments increase range, endurance, and lethality while decreasing risks to warfighters.

In support of installation resilience, the Department is using appropriated funds and third party financing to increase the resilience of bases and facilities critical to generating, deploying, operating, and sustaining military capabilities. This is being done in alignment with Administration guidance and the climate change mitigation requirements noted above. The Energy Resilience and Conservation Investment Program (ERCIP) is the Department’s key mechanisms for building both energy resilience and reducing GHG emissions. ERCIP supports a full range of projects and technologies, but will be increasingly focused on building cyber-secure micro-grids that incorporate energy generation and power storage technologies. ERCIP will also be used to plan and design some of our more complex projects to enable the installation of electrical vehicle charging stations. The Department also has a number of energy conservation initiatives, most of which are directed to existing buildings. These include sustainment and recapitalization projects, which generally involve retrofits to install improved lighting, high-efficiency HVAC systems, double-pane windows, facility related control systems (FRCS), and new roofs. The Department is also giving increased attention to Micro Reactors and Next Generation Geo-Thermal as zero-carbon technologies capable of providing consistent baseload power.

Operational Energy Resilience

The Department depends on the resilient delivery of energy to forces, weapon systems, and facilities around the globe. In FY2021, the Department consumed over 78 million barrels of fuel to power ships, aircraft, combat vehicles, and contingency bases at a total cost of \$7.9 billion. To respond to the needs of a global force, the Department purchased nearly 50% of this fuel outside of the U.S. Beyond liquid fuels, the Department also is relying on advanced energy storage to

enable long-range, autonomous, directed energy, high-power sensors, and other warfighting capabilities across air, sea, and land domains. To prepare for peer competition where even the homeland is contested, the Department is addressing a range of technological, operational, and policy initiatives to enhance the use of energy in warfighting.

Contested Logistics

The Department acknowledges the challenges of supporting Joint operational concepts facing adversary A2/AD capabilities, the tyranny of distance, and the increasing energy demand of our own forces. With the support of the FY2022 National Defense Authorization Act (NDAA), the Department is establishing the Contested Logistics Working Group to mitigate contested logistics challenges through the reduction of operational energy demand. Chaired by ASD(EI&E) and including senior leaders from OSD, the Joint Staff, Combatant Commands, and the Services, the Working Group will develop recommendations for recommendations for force development and modernization that increase lethality, extend range, and enhance on-station time for tactical assets. In addition, the Contested Logistics Working Group will support the development of an updated and expanded *Operational Energy Strategy* by February 2023, in accordance with direction in the FY2022 NDAA.

Energy Supportability and Demand Reduction

A critical element to responding to contested logistics is ensuring that energy supportability and energy demand reduction are included in capability development decision-making. In support of direction from the Deputy Secretary of Defense, OASD(EI&E) is leading an initiative to increase transparency regarding the role of energy in current programs, enhance the role of energy risks and opportunities in strategic guidance, and adapt our current requirements and acquisition processes to emphasize energy supportability and demand reduction. We anticipate initial results from this effort by the end of the fiscal year.

Wargames and Analytics

To enhance the identification of risks and opportunities, ODASD(E&ER) provides oversight and support to energy-related wargames and analytics. Building on the initial Joint Force Energy Wargame in 2019, ODASD(E&ER) sponsored a series of follow-on games in November 2021 and February 2022 that focused on evaluating Joint energy demand, supply, and distribution in a contested operating environment. ODASD(E&ER) continues to work with OUSD(Policy), the Joint Staff, Services, and Combatant Commands to advocate for the inclusion of operational energy risks and adaptations into future games to inform force structure decisions and operation plan development.

Reflecting the role of analytics to Department decision-making, OASD(EI&E) is working with the components to enhance the evaluation of Joint energy supply and distribution risks. For instance, ODASD(E&ER) led the development of the current (“as is”) global laydown of capitalized (DLA-Energy operated) and non-capitalized (Service operated) bulk fuel infrastructure, to include wartime reserves, to enable a more robust view of the global storage portfolio. We are coordinating with the Joint Staff to include the current and future laydown of

infrastructure in current and future contested logistics campaign modeling efforts to depict the effects of disrupted energy supplies on operational objectives and mission accomplishment. In addition, ODASD(E&ER) is advocating for the development of data and modeling methodologies to evaluate the effects of “battlefield electrification” on contested logistics campaigns.

Bulk Fuel Governance

OASD(EI&E) continues to collaborate with OSD, Joint Staff, Combatant Commands, and the Services to enhance the global integration of fuels-related decision-making. In September 2020, the Joint Staff J4 and ASD(Sustainment) updated Department bulk fuel policy to improve governance and prioritization of repositioning of bulk fuel war reserve stocks and military construction investments in bulk fuel infrastructure. Since then, the Department initiated changes to the process for prioritizing investments in capitalized bulk fuel infrastructure and those changes will be final this fiscal year. OASD(EI&E) also is supporting Department planning to implement the FY2022 NDAA direction that USTRANSCOM will be the single manager for global bulk fuel operations. These overarching changes in Department-wide bulk fuel roles and responsibilities will then be codified in DoD Instruction 4140.25 and its associated manuals and other relevant Department issuances as appropriate.

Installation Energy Resilience

The Department spent \$3.3 billion in FY2021 on energy to power facilities at over 500 installations worldwide. This amount of energy consumption represents how great our dependency is on energy, underscoring the importance of our need to ensure our energy supplies and methods of supply are resilient, sustainable, and affordable.

Installation Energy Resilience Policy and Governance

To continue infusing the installation energy programs across the Department with an urgent sense of traceability, accountability and purpose, we are continuing to develop and promote a data- and metrics-driven approach to our energy planning and programming. This approach is reflected in our recent and continuing efforts to develop or update installation energy policy across the Department.

Last year, we updated our policies for energy resilience planning and metrics at installations to reflect the 10 U.S.C. § 2920 energy resilience requirements added by the FY2021 NDAA. These updated policies set forth energy availability standards for critical missions; directs the Military Departments to promote the use of multiple and diverse sources of energy in their planning, with prioritization of energy resources originating on the installation; encourages the use of micro grids; and favors the use of full-time, installed energy sources rather than emergency generation in their energy resilience solutions.

We are also working to harmonize the definitions and planning and assessment processes for critical missions across the Department, and improve our Installation Energy Plans (IEPs) to ensure alignment with the Installation Resilience Plans (IRPs) required by 10 U.S.C. § 2864.

More than 158 IEPs were complete by the end of last year, and with an additional 200 expected to be completed this year. Currently, these plans establish the basis for planning energy performance projects, and provide a roadmap for integrating appropriated and public-private partnership authorities to close energy resilience gaps. Going forward, the IEPs will also document critical load requirements, lessons learned from black start exercises, and the ability of installations to withstand a 14-day energy disruption. We plan to eventually integrate the IEPs into the IRPs to reflect an “all hazards” approach that addresses a range of climate hazards and energy resilience gaps at priority installations and critical missions.

Black Start Exercises

Black start exercises are now an important component of the Department’s approach to risk assessment and for identifying gaps in our installations’ electrical infrastructure, such as previously-unknown interdependencies between various systems, so that we can best prioritize our resilience resources and planning. In the coming year, the Department will issue uniform black start exercise guidance and monitor a schedule of planned exercises through fiscal year 2027, for no less than five exercises per Service per year, in accordance with new Title 10 requirements stemming from the FY2021 National Defense Authorization Act.

Over the past year, we continued to transition execution of black start exercise to the Services. Across the Department in 2021, the Services conducted exercises at Marine Corps Air Station Miramar, Eielson Air Force Base, Wright Patterson Air Force Base, and Ohio Air National Guard bases Springfield-Beckley and Blue Ash. This brings the total number of black start exercises performed to date across the Department to 10. The Services have also begun planning for larger, regional black start exercises that cover several bases at once to more effectively test outage effects on Operation Plans, and the effectiveness of Continuity of Operations (COOP) plans.

Energy Resilience and Conservation Investment Program (ERCIP)

The ERCIP program has executed over 511 high-priority projects from FY2009-2021 including the implementation of micro-grids, renewable energy generation (i.e., solar PV, solar thermal, wind, etc.), building efficiency enhancements, and utility distribution improvements. As ERCIP transitions to a standardized MilCon program, we are ensuring enhanced execution oversight of ERCIP projects. We continue to make ERCIP the backbone of our energy resilience investments and prioritize energy project investments where they can best support the defense posture – based on the critical missions they support and the quality of IEPs. We recently updated ERCIP Guidance to the Services to reflect the statutory changes to the program stemming from the FY2022 NDAA. At the same time, we are working to prioritize projects that support energy resilience for critical mission requirements (10 U.S.C. § 2920). As Department focuses on reducing the carbon footprint at our military installations, ERCIP will continue to support a range of technologies and efforts, including renewable energy and energy storage, geothermal, accelerated deployment of air source heat pumps, and infrastructure projects directly supporting electrical vehicle (EV) charging stations.

Performance Contracting Authorities

The Department continues to utilize performance contracting (i.e., ESPCs/UDESCs) as a significant part of its efforts to enhance energy resilience through energy efficiency. Energy efficiency bolsters installation energy resilience by helping reduce the energy demand from distributed energy production resources during commercial grid disruptions. Energy efficiency is also a practical approach for the DoD to reduce its carbon footprint in response to the imperatives of EO 14008 and EO 14057, the Energy Act of 2020, the Federal Sustainability Framework, and DoD's Climate Action Plan. DoD will continue to use these contracts where they enhance DoD mission readiness, mission assurance, and ultimately DoD's warfighting capability, guided by the outcomes of the Installation Energy Planning process.

INNOVATION

The transfer of the Operational Energy Capability Improvement Fund (OECIF) from USD(R&E) to USD(A&S) presented an opportunity to closely couple the Department's Environmental and Resilience Technology and Operation Energy Technology programs in an Innovation pillar in the Office of the Deputy Assistant Secretary for Environment and Energy Resilience.

Environmental and Resilience Technology

The Department's Environmental Technology efforts are centered on two key programs: the Strategic Environmental Research and Development Program (SERDP), which focuses on basic and applied research, and the Environmental Security Technology Certification Program (ESTCP), which validates more mature technologies to transition them to widespread use. These Defense-wide environmental technology programs coordinate closely with the Military Services to ensure research, demonstration, test and evaluation are focused on the Department's most pressing environmental needs.

These programs have historically delivered impactful results and are poised to significantly reduce long-term costs by implementing new ways of treating sediment and groundwater contamination, to increase installation built and natural infrastructure resilience by providing effective tools to planning staff to anticipate the impacts of climate change, to reduce the life-cycle costs of multiple weapons systems through development and demonstration of innovative coatings and materials that avoid increasingly unavailable hazardous elements, and to demonstrate technologies to improve installation energy and water resilience.

SERDP/ESTCP continue to support the most extensive R&D program on the detection, analysis, and treatment of per- and polyfluoroalkyl substances (PFAS) in the federal government. A topic of particular concern is alternatives to incineration for disposal of AFFF-related PFAS. In August 2021, the Environmental Protection Agency published a draft analytical method for PFAS in media other than drinking water; the development and testing of the method was sponsored by SERDP.

In the critical area of installation energy, we continue to focus on proving technologies and solutions that cost-effectively incorporate energy storage into installation-level microgrids to improve the energy security and resiliency of our installations. In addition, in FY2021 ESTCP initiated a number of projects focusing on effective planning for electrical vehicle infrastructure and management. This thrust will expand in FY2022 and beyond.

Operational Energy Technology

The Department's Operational Energy Technology efforts reside within two key programs: the Operational Energy Capability Improvement Fund (OECIF), which focuses on advanced technology development, and the Operational Energy Prototyping Fund (OEPF), which validates more mature technologies to transition them to widespread use. These Defense-wide operational energy technology programs coordinate closely with the Military Services and Combatant Commands to ensure research, demonstration, test and evaluation are focused on the Department's most pressing operational energy needs while simultaneously advancing future asymmetrical warfighting options.

The OECIF and the OEPF programs are investing to develop new technologies and practices in three main thrust areas. **Powering the Force** is an initiative to improve our ability to meet the energy needs of the current force through efficiency, autonomy, storage, and novel energy conversion and management technologies. **Electrifying the Battlespace** provides significantly greater efficient and flexible power system options for propulsion, defensive and offensive combat systems, and further provides a pathway for evolving away from liquid fuels and toward alternative ways to produce, store and manage electricity for new platforms and systems coming into the inventory over the next decade. **Commanding Energy** evolves technologies that inform of battlespace awareness including the use of data analytics and artificial intelligence to better understand where energy is sourced, where it's needed, and how to move it, real-time, around a battlespace in response to enemy action or other disruptive events. Commanding Energy also provides tools, training and education, for more effective force structure and operational planning and wargame design and execution. Beyond the operational value, these three innovation pathways provide greenhouse gas benefits, directly reducing DoD's carbon footprint and fostering applicability for commercial uses that proliferate climate benefits across the economy.

While OEPF is new and will help bridge the gap towards Service transition, OECIF programs have already achieved impactful results and laid the foundation for ground and sea vehicle electrification that is emerging in today's Service Energy Strategies. OECIF has also shown success integrating energy-storage with tactical microgrids and championing autonomous refueling and extending Class 2 drones' operations from hours to days. These emerging capabilities, combined with US and NATO standardization advocacy, increase resilience, interoperability, operational range flexibility, lethality, while driving-down acquisition costs, and reducing carbon emissions among the Services and with our Coalition partners. OECIF also focuses on longer-term higher-risk investments such as advancing nuclear fuel options and successfully increasing distance and power-levels of wireless power transmissions for terrestrial and space applications. The nuclear fuel demonstration line is nearing completion and is set to begin producing fuel in FY2022 to support DoD's investment in "Project Pele" the mobile small

modular reactor under development by the Strategic Capabilities Office. Each of these foundational efforts is increasing service interactions and whole-of-government interest and opportunities with NASA, DOE, and others. Finally, OECIF made recent strides prototyping power and thermal systems for directed energy lasers, producing hardware capable of supporting 300-500kW laser tests and conducting successful building block testing in December 2021.

CONCLUSION

Thank you for the opportunity to discuss DoD's programs supporting energy, installations, and environment. We appreciate Congress' continued support for our enterprise and look forward to working with you.

Paul D. Cramer**Principal Deputy Assistant Secretary of Defense for Installations**

Mr. Paul D. Cramer, a career member of the Senior Executive Service since June 2013, is currently performing the duties of Deputy Under Secretary of Defense for Acquisition and Sustainment (PTDO DUSD(A&S)). In this role, he is responsible to the Under Secretary of Defense for all matters pertaining to acquisition; contract administration; logistics and materiel readiness; installations and environment; operational energy; chemical, biological, and nuclear weapons; the acquisition workforce; and the defense industrial base.

Mr. Cramer is also currently performing the duties of Assistant Secretary of Defense for Energy, Installations, and Environment (PTDO ASD(EI&E)). In this role, he is the principal advisor to the Under Secretary of Defense for Acquisition and Sustainment for all matters relating to energy, installations, and the environment, including operational and facility energy, installation maintenance and environmental planning. He provides budgetary, policy and management oversight of the Department of Defense's real property portfolio which encompasses millions of acres and over 500,000 buildings and structures at more than 500 installations.

Prior to the PTDO DUSD(A&S) and PTDO ASD(EI&E) roles, Mr. Cramer served as the Principal Deputy Assistant Secretary of Defense for Installations focused on Energy, Installations, and the Environment. In this capacity, he was the principal advisor to the Assistant Secretary of Defense for Sustainment on all policies and programs pertaining to installations, environment, installation and operational energy, and infrastructure resilience. His portfolio included installation management, military construction, and utilities and energy management.

Previously serving as the Deputy Assistant Secretary of the Army for Installations, Housing, and Partnerships, Mr. Cramer was responsible for construction, housing, and Army installations.

Mr. Cramer is a licensed Professional Engineer in the Commonwealth of Virginia. Mr. Cramer obtained his Master's Degree in Engineering Management from the Missouri University of Science and Technology, and his Bachelor's Degree in Civil Engineering from South Dakota State University. Mr. Cramer was recognized for his achievements with multiple Meritorious Civilian Service Award, Superior Civilian Service Medals and Army Commanders Award for Civilian Service.

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RECORD VERSION

STATEMENT BY

MR. PAUL FARNAN
ACTING ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS, ENERGY AND ENVIRONMENT)

BEFORE THE

SUBCOMMITTEE ON READINESS
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

SECOND SESSION, 117TH CONGRESS

ON ENERGY, INSTALLATIONS, AND ENVIRONMENT PROGRAM UPDATE

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Chairman Garamendi, Ranking Member Waltz, and Members of the Subcommittee, thank you for the opportunity to testify on how the Army is preparing for the challenges ahead by working to increase overall Army readiness through the Installation, Energy, and Environment portfolios and answer any questions you may have. Thank you for your continued support and commitment to our Soldiers, Civilians, and Families. Your guidance and leadership continue to be instrumental in our shared pledge to successfully defend our Nation and its interests, and I look forward to working with the Committee to achieve mutual goals of ensuring readiness at military installations, while continuing to modernize and be resilient in the face of climate change.

Introduction

Modernized installations enable a modernized force. Any operational deployment begins from an installation where our Soldiers work, train, drill, and live. In addition to providing our Soldiers and Families with basic necessities, our installations are the initial critical part of the deployment chain. Given current threats, we must plan for any future deployments to be conducted from a contested homeland. Only a modern, resilient installation will give the Army the capability to effectively project power under adverse conditions.

The Army foundational priorities of people, readiness, and modernization guide our strategies and investments. Secretary Wormuth recognizes and focuses on people being at the core of everything we do. The core of our installations mission is to support the people, the training, the education, the work, and the lives of our Soldiers and Families.

The Army must adapt installations, acquisition programs, and training to be able to operate in a changing environment. I look forward to sharing with you the transformative work being accomplished by the Army's installation management community in support of our people, readiness, and modernization, such as housing and barracks investments; ongoing environmental cleanups in support of healthy

Soldiers, communities, and environments; and our cross-cutting focus on climate, energy, and mission resilience in all that we do.

Army Climate Strategy

The Army's mission is to fight and win the Nation's wars. Extreme weather events and severe environmental changes are already affecting Army installations and operations. Our Soldiers and Families are feeling the direct effects of climate change, including flash flooding at Fort Hood in 2016, wildfires at Fort Hunter Liggett in 2019, and a significant ice storm at Fort Hood in 2021. The Army is regularly called upon to conduct disaster response operations following climate change-induced events. In February 2022, the Army became the first service to release a Climate Strategy to enable our force to effectively operate in a changing environment, strengthen the resiliency of our installations, and increase the capabilities of our force.

The Army Climate Strategy enables our forces to more effectively operate in a climate-altered world through three lines of effort—installations; acquisition and logistics; and training. Fighting and winning our Nation's wars begins at our installations and we must be able to effectively project our power from a contested homeland and under any adverse conditions. This strategy increases our capabilities and the resilience of our installations even after an adverse event. For example, renewable energy generation on a base, paired with battery storage and a microgrid, will better enable the Army to self-sustain its critical missions on our installations and will make us less dependent on a vulnerable local electric grid. On the operational side, greater fuel efficiency of our tactical vehicles will increase our capabilities by extending the range of our combat forces, while simultaneously reducing the vulnerability and burden of supply lines that often must move through contested areas. Hybridizing our combat vehicles will allow for silent overwatch by reducing the acoustic and thermal signature of our platforms, thereby greatly increasing the safety of our Soldiers. The Army Climate Strategy not only enhances the capability of our fighting force and resilience of our installations, but it also allows the Army to do its part in reducing the devastating effects climate change will have on our Nation by reducing greenhouse gas emissions.

Partnership Financing

The Office of Energy Initiatives (OEI) is the Army's central office for the development and implementation of large-scale power generation projects focused on energy resilience at installations. The office collaborates with industry and private investors to identify mutual needs and leverage those opportunities to meet the Army's efforts for on-site resilient energy, focused on creating microgrids. These microgrids are "islands" of energy availability on installations to ensure mission readiness in the event of a grid outage. OEI's work is a critical part of the Army's intent to accelerate the transition to carbon pollution-free energy sources while simultaneously increasing our installation resilience. To date, 11 projects developed by OEI are online, providing a combined 325 megawatts of energy production capacity, secured through \$627 million of private sector investment, with anticipated life-cycle operations and maintenance values of \$603 million. In addition, OEI has led two more out-grant-based resilience projects which are in the final stages of negotiation, which we hope to announce soon, once finalized.

The Army also utilizes the Department of Defense's (DoD) Energy Resilience and Conservation Investment Program (ERCIP) to reduce reliance on the grid and construct on-site power generation and associated infrastructure. OEI is actively evaluating the potential for combining ERCIP projects with existing power generation assets originally constructed through real estate out-grants or other authorities. In fiscal year (FY) 2021, we began updating our policies for Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs). The goal of these policy updates is to ensure Army installations use performance contracts as part of an overall strategic approach to sustain, restore, and modernize installations and to mitigate and adapt to climate change. After a thorough review of the ESPC/UESC process, the Army is again accelerating the processing of contracts and the evaluation of new projects. The Army is aggressively working to award approximately one dozen ESPCs and UESCs this year.

Army Infrastructure Investments

While our sustainment funding remains less than 90% of the Facilities Sustainment Model for FY 2022, we are increasing Restoration and Modernization funding to pursue targeted repairs of critical facilities. We are successfully implementing the Office of the Secretary of Defense Sustainment Management System (SMS). In FY 2022, we are using a state-of-the-art analytical tool called SMS BUILDER for condition assessments in all buildings greater than 1,000 square feet to provide a more technical assessment of facility condition and facilitate a more targeted approach to our sustainment funding.

Investments Reflect Army Priorities—People, Readiness and Modernization

The Army's greatest strength, most valuable asset, and most important weapon system is our people. The efforts we take to sustain and invest in our installations support our people by strengthening their quality of life and improving their access to housing, healthcare, and childcare. With timely, adequate, predictable, and sustained funding, we will ensure that our people remain a priority, which will help us continue to recruit, train, and retain an Army of high-quality Soldiers, prepared to win our Nation's wars.

Army Housing

Our Soldiers and Families deserve high-quality, safe housing. We remain focused on improving our privatized housing portfolio and addressing the remaining elements of the Military Housing Privatization Initiative (MHPI) reforms set out in the FY 2020, FY 2021, and FY 2022 National Defense Authorization Acts (NDAA).

The Army has made significant progress implementing reforms to enhance our oversight of privatized housing and hold MHPI companies accountable for delivering quality housing that provides a positive living experience for tenants. For example, the Army conducts housing quality assurance inspections at each change of occupancy and for all life, health, and safety maintenance work orders. We also have started implementing the third-party housing inspections required by section 3051 of the FY

2020 NDAA, as amended. Inspections commenced at Fort Meade in December 2021, representing the second installation in our pilot program to implement the NDAA requirement to inspect all privatized housing and all government-owned family housing using a uniform DoD housing standard. Our first pilot inspection was conducted at Fort Belvoir and concluded in July of 2021, with the overall privatized housing inventory rated in "good" to "excellent" condition. We have made a summary report about the Fort Belvoir inspection findings available to the committee staff and we will provide additional details at the committee's request.

In addition, the Army has fully implemented the MHPI Tenant Bill of Rights at all of our installations with privatized housing, thereby providing military members and their families negotiating power with the private companies that own and manage MHPI housing. In addition, we continue to host weekly housing meetings with key stakeholders and privatized housing companies to review the physical and financial condition of our MHPI housing, as well as the status of any families displaced due to maintenance and repair actions. We have hired independent third-party experts to perform comprehensive financial and development reviews, and have completed 14 audits of MHPI project business practices with another seven in progress. The Army also has established an enforceable incentive fee metric to reward improved work order response times, achieve better quality work, and increase resident satisfaction, consistent with DoD policy guidance issued in October 2019.

The Army's privatized housing providers have obtained up to an additional \$1.5 billion in private sector sourced financing and are reinvesting another \$1.6 billion of retained earnings to make or accelerate needed housing improvements across the Army portfolio. Furthermore, the Army has invested \$905 million over the past three years (FY 2019-2021) in Army-owned housing improvements and construction, mostly overseas, and we have hired more than 114 additional housing personnel to enhance oversight of Army's portfolio including MHPI housing projects, serve as designated resident advocates, and/or provide housing referral services including support to military families who need accessible housing.

Our unaccompanied housing (UH) challenges are being addressed through Facilities Sustainment, Restoration, and Modernization efforts, as well as Military Construction. This has resulted in \$2.4 billion invested in barracks for construction and restoration and modernization over the last three years (FY 2019-2021) with billions more programed in the future to ensure we maintain our current momentum. The Army is focused on modernizing barracks standards that incorporate user feedback, provide privacy and security, and incorporate the latest technology. For example, we have implemented the Army Maintenance Application, which allows Soldiers to quickly submit a maintenance claim without having to wait for their chain of command to input a work order. Finally, the Army recently began evaluating opportunities to address UH requirements within a more holistic Army Barracks Strategy. The Army's goal is to find multiple solutions to apply across our installations to ensure every Soldier has the opportunity to live in a high quality, fully functional environment that is conducive to military readiness.

Child Care

Another important component to taking care of people is providing the opportunity for quality child care where availability of off-post care is limited in many communities, reducing options for Soldiers who cannot access on-post care. The Army is implementing mitigation strategies to maintain and, in some cases, increase access to child care, which includes adding and expanding Child Development Centers over the next ten years. The Army also has a robust Army Fee Assistance program that buys down the cost of community child care for approximately 10,000 children per day when a family has limited access to installation child care or a family's duty station is not at an installation. The Army is also incentivizing spouses to increase the number of Family Child Care (i.e., home-based) providers.

Strengthen Readiness and Address Modernization Needs

Modernized installations enable a modernized force. The Army is programming upgrades to maintenance facilities, motor pools, ranges, readiness centers, network infrastructure, administrative facilities, secure facilities, and utilities to facilitate a modern

and ready Army. Force projection requires assessment of roads and highways, bridges, ramps, marshaling yards, ammunition supply points, railways, and airfields. Real property master planning processes will become more technically sophisticated, using data-informed analysis and modeling to integrate new specifications of modern equipment and achieve better environmental analysis necessary to fulfill requirements of the National Environmental Policy Act as new weapon systems are fielded.

Safety and Occupational Health

Ensuring our Soldiers and Civilians are ready to support the Army mission requires extensive continual investments in proactive injury and illness prevention both on the installation and when deployed. In FY 2022, the Army is focusing efforts on the deployment of the Army Safety and Occupational Health Management System. This requirement will ensure each command is implementing and evaluating those safety and occupational health policies that proactively address command-specific risks. The Army is also fielding the Army Safety Management Information System 2.0, an updated information technology system to collect and analyze mishaps, to evaluate health and safety hazards through inspections, and a risk management system to evaluate and track hazards. Additionally, the Army is developing prevention through design and facilities systems safety policies to identify and reduce safety and occupational health risks in our facilities. The adoption of these modern practices are critical to Army readiness, to the health and safety of our Soldiers and Civilians, and to the long-term use and the disposal of our facilities. The Army will continue to invest in the readiness of its safety and occupational health workforce through training, education, and partnerships.

Promote Environmental Stewardship

The Army's Environmental Program encompasses a broad range of legal compliance and management efforts that support clean air and water, maintain natural, cultural, and Native American resources, and sustain Soldier training and readiness on the Army's 13.6 million acres of land. The program area includes requirements of the National Environmental Policy Act, Clean Water Act, Safe Drinking Water Act, Clean Air

Act, Comprehensive Environmental Response, Compensation and Liability Act, and Resource Conservation and Recovery Act, among others. The Army maintains 4,902 environmental permits. Army installations were inspected 787 times by environmental regulatory agencies in FY 2021 and were issued only 34 Enforcement Actions. The Army's environmental program also helps maintain access to testing and training lands and ensure stewardship of natural and cultural resources through compliance with natural, cultural, and Native American resource conservation laws including the Endangered Species Act, Sikes Act, National Historic Preservation Act (NHPA), and Native American Graves Protection and Repatriation Act (NAGPRA), among others. The Army manages the largest number of endangered species and historic properties in the DoD. The Army has 261 threatened and endangered plant and animal species on 146 installations and facilities, 1.3 million acres of wetlands, 84,437 archeological sites, 180 Native American sacred sites and traditional cultural properties, 21,000 Native American NAGPRA cultural items, 57,362 historic buildings subject to the NHPA, and 19 National Historic Landmarks. The Army maintains a leadership role among the military departments due to the magnitude of our resources and our success in achieving positive outcomes for the readiness mission and stewardship resources, to include successes in establishing Army Compatible Use Buffers for endangered species management and program comments to comply with historic housing management requirements under section 106 of the National Historic Preservation Act.

Remediate Contaminants

To address per- and polyfluoroalkyl substances (PFAS), the Army has taken a three-pronged approach focused on cleaning up past releases, testing drinking water, and mitigating the use of aqueous film-forming foam (AFFF). As of December 31, 2021, the Army is conducting PFAS assessments at 337 installations in the United States and its territories. We continue to test our Army-owned drinking water systems regularly and take immediate action in instances where measured levels exceed the Environmental Protection Agency's lifetime Health Advisory levels. Finally, the Army only uses AFFF for fire emergencies. The Army is committed to prioritization of our worst sites, transparency about our cleanup progress, and expansion of our public outreach. The

Army's priority remains the health and safety of our Service members, their Families, our Army Civilians, and the communities surrounding our installations.

Conclusion

Modern installations enable a modern force and Army Readiness begins on our installations. We must continue our efforts to be resilient in the face of climate change. Ready and resilient installations will ensure our Soldiers are able to properly train and deploy globally from a contested homeland to fight and win our Nation's wars. The Army is guided by our priorities of people, readiness, and modernization; our installations provide the foundation for these priorities.

Your continued support helps ensure we will remain a ready, lethal, and sustainable force for future generations. Thank you for the opportunity to present this testimony and for your continued support of our Soldiers, Civilians, and Families.

Paul W. Farnan
Principal Deputy Assistant Secretary of the Army
(Installations, Energy and Environment)

Mr. Paul Farnan was sworn in as the Principal Deputy Assistant Secretary of the Army for Installations, Energy, and Environment on October 4, 2021, and is also serving as the Acting Assistant Secretary of the Army for Installations, Energy and Environment.

As the Acting Assistant Secretary of the Army for Installations, Energy and Environment, he is the principal deputy advisor to the Secretary of the Army and Chief of Staff of the Army on all matters related to Installation policy and oversight and the coordination of energy security and management. He is also responsible for policy and oversight of sustainability and environmental initiatives; resource management including design, military construction, and operations and maintenance; Base Realignment and Closure (BRAC); privatization of Army family housing, lodging, real estate, and utilities; and the Army's Installation Safety and Occupational Health (SOH) programs.

Prior to his appointment, Mr. Farnan served at U.S. Northern Command performing COVID response operations. This included deploying in spring 2020 to California, Louisiana, and New York City to assist in the coordination of the medical support the military provided to the citizens of those states. He also was a member of the planning team that wrote DoD's global pandemic response plan, and in the spring of 2021 deployed to New Jersey to coordinate military teams providing support at the federal vaccination sites in that state.

Mr. Farnan has also served in the operational energy office in the Pentagon and as a senior civilian advisor to the commanding general in Afghanistan where he focused on civil-military cooperation. He has also worked as a senate legislative assistant working on defense and veterans' issues. Mr. Farnan served on active duty for nine years as a Naval helicopter pilot and continues to serve as an officer in the Naval Reserve.

Mr. Farnan graduated from Villanova University with a Bachelor of Electrical Engineering. He further earned a Master of Arts in Environmental Policy from the University of Denver and a Master of Science in Global Energy Management from the University of Colorado, Denver.

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UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

STATEMENT OF
HONORABLE MEREDITH A BERGER
ASSISTANT SECRETARY OF THE NAVY
(ENERGY, INSTALLATIONS AND ENVIRONMENT)

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

MARCH 16, 2022

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

Introduction

Chairman Garamendi, Ranking Member Waltz, and distinguished members of the Subcommittee, thank you for the opportunity to testify on the Department of the Navy (DON) Energy, Installations and Environment (EI&E) portfolio. I look forward to sharing with you how the DON enables warfighting readiness through modernized and climate-ready shore installations; unrivaled testing and training ranges; resilient facilities and operations; safe and healthy conditions for our people; and stewardship of the environment as a strategic asset.

Red Hill

On March 7, 2022, the Secretary of Defense (SECDEF) announced his decision to defuel and permanently close the Red Hill facility, and to reposition fuel stored at Red Hill by leveraging commercial infrastructure. The Red Hill facility will be defueled in compliance with environmental safeguards and in accordance with applicable federal, state, and local regulations. No later than May 31, 2022, the Secretary of the Navy and the Director, Defense Logistics Agency will provide a plan of action and milestones to defuel the facility. The plan of action will require that defueling operations commence as soon as practicable after the facility is deemed safe for defueling, and target the completion of defueling within 12 months. The decision to close the facility was the product of the Department of Defense's (DoD's) thorough review of options for the long-term distribution of fuel reserves in support of operations in the Indo-Pacific region.

The contamination of the Navy drinking water system in Oahu, Hawaii, has impacted the lives of thousands of people in the communities surrounding Joint Base Pearl Harbor – Hickam. The DON takes very seriously its responsibility to make things right for the people and the environment. I traveled to Oahu in December 2021 to tour the Red Hill facility, to meet with the DON personnel and the intergovernmental team who are working to support our people and

restore potable water, and to meet with local community and Native Hawaiian leaders. At Secretary Del Toro's direction, I stood up a federal interagency working group that developed a whole-of-government response to this complex and urgent problem. On site in Hawaii, we established an Interagency Drinking Water System Team – comprising experts from the U.S. Environmental Protection Agency (EPA), the Hawaii Department of Health (HDOH), and the DoD – to work diligently and collaboratively to restore safe drinking water as soon as possible. We remain focused on the families and residents impacted by contaminated water. The DON has expedited medical screenings and provided clean drinking water, temporary lodging, reimbursement for meals and expenses, showers, laundry service, and other types of support. We are also supporting affected schools and businesses as well as people who are not affiliated with the DoD but live in homes serviced by the Navy's water system.

Under jointly-agreed-upon plans and procedures, the Interagency Drinking Water System Team (IDWST) has conducted comprehensive flushing and sampling to ensure that water is clean and safe for use. Through this process the IDWST provided comprehensive sampling data to the HDOH so it could evaluate whether the water is safe for the homes and buildings in each affected neighborhood, and amend its health advisory accordingly. To make this transition as smooth as possible, we have provided clear information to families and established Rapid Response Teams to immediately address resident concerns regarding water quality. Long-term water monitoring protocols, which have been endorsed by the EPA and HDOH, are now in place to regularly test water at various locations served by the Navy's drinking water system in Oahu.

The DON continues to work with the HDOH, national and local elected officials and other community leaders to remediate the contamination at the Red Hill well. Over the past two months, the DON conducted skimming operations and installed a large, granular-activated-

carbon water filtration system to remove and limit the spread of contaminants in the groundwater. We are sampling the water constantly to ensure there is no fuel in the water as it is pumped through the filtration system. Finally, the DON is working with the EPA, U.S. Geological Survey, the HDOH, the Hawaii Department of Land and Natural Resources, the Honolulu Board of Water Supply, and the University of Hawaii, to expand the network of groundwater monitoring wells around Red Hill.

The DON fully supports the Secretary of Defense's decision to defuel and permanently close the Red Hill Bulk Fuel Storage Facility, and I look forward to working with our interagency partners and the HDOH to protect the residents of Hawaii, the environment, and the security of our nation. The DON will continue to engage with federal, congressional, state, and community stakeholders throughout this process. We will move forward together.

Modernized Installations and Ranges to Enable Navy and Marine Corps Operating Forces

I appreciate this committee's continued attention to the urgent need to modernize the Navy's premier aviation training range, the Fallon Range Training Complex (FRTC) in Nevada, and DON leadership remains focused on achieving this critical objective. The Nation's naval forces must have training facilities and ranges that allow them to train like they fight, and the FRTC plays a paramount role in the readiness of Naval Aviators and Navy Sea, Air and Land (SEAL) forces. The DON continues to contribute to the FRTC Intergovernmental Executive Committee to obtain views of stakeholders on FRTC range modernization and the stewardship of natural and cultural resources on the range. This committee consists of representatives from the DON, Department of the Interior (DOI), the State of Nevada, the counties of Churchill, Lyon, Mineral, Pershing, and Eureka, and multiple Tribes (Battle Mountain Band of Te-Moak Tribe Western

Shoshone, Duckwater Shoshone Tribe, Elko Band Colony-Te-Moak Tribe of Western Shoshone, Fallon Paiute Shoshone Tribe, Fort McDermitt Paiute Shoshone Tribe, Lovelock Paiute Tribe, Pyramid Lake Paiute Tribe, Reno-Sparks Colony, South Fork Band-Te-Moak Tribe of Western Shoshone, Summit Lake Paiute Tribe, Te-Moak Tribe of Western Shoshone, Walker River Paiute Tribe, Washoe Tribe of Nevada and California, Wells Band Colony Te-Moak Tribe of Western Shoshone, Winnemucca Indian Colony, Yerington Paiute Tribe, and Yomba Shoshone Tribe).

In October, I had the opportunity to visit Fallon and meet with the leadership of the Walker River Paiute Tribe and the Fallon Paiute Shoshone Tribe and the Churchill County Commissioner to gain a greater appreciation of their perspectives on the Navy's current and future use of lands near Fallon. The DON is also in regular dialogue with the DOI to work towards the productive resolution of outstanding issues. The DON remains firmly committed to working closely with all stakeholders, to include Tribal Nations, to find a viable path to provide our warfighters a range complex that allows them to train for the high-end fight.

Navy and Marine Corps installations located in the United States and around the world are essential shore platforms from which naval forces train, deploy, and maintain forward presence to enable geographic Combatant Commanders to meet operational requirements. Thanks to the strong support of Congress, the DON is making great progress restoring and rebuilding from natural disasters dating back to the 2018 hurricane season. Since March 2021, the DON has awarded military construction projects totaling more than \$1 billion to restore infrastructure after hurricanes, earthquakes, and other extreme weather at Naval Air Station China Lake in California, Marine Corps Base Camp Lejeune in North Carolina, Naval Air Station Pensacola in Florida, and Naval Air Facility El Centro in California. We are also continuing to build out

Marine Corps installations in the Indo-Pacific area of operations associated with the Defense Posture Review Initiative, with a near-term focus on Marine Corps Base Camp Blaz on Guam. Over the past year, the DON awarded 19 military construction projects to support the Marine Corps in the Indo-Pacific. Marine Corps Force Design concepts are being considered in the design of future military construction projects to ensure resilience in the face of operational and environmental threats, maximize effective use of resources, and appropriately posture the Marine Corps in the region.

A modernized and ready organic industrial base is a vital component of readiness, and the DON is taking an enterprise-wide approach to optimize infrastructure at the shipyards, depots, and logistics complexes that repair and modernize our ships, submarines, aircraft, and tactical vehicles. The Shipyard Infrastructure Optimization Program (SIOP) is a critically important program to prepare the Nation's four public shipyards to meet the future needs of the Navy's nuclear-powered submarine and aircraft carrier force. In August, the Navy awarded a \$63 million construction project for improvements to Dry Dock 2 and a \$1.7 billion primary construction contract to expand and reconfigure a dry dock complex at Portsmouth Naval Shipyard in Maine to increase the shipyard's capacity to maintain, modernize, and repair the Navy's attack submarines and return them to service. To support future ship and submarine overhauls in the Pacific, the DON released a draft Environmental Impact Statement in February 2022 for a replacement dry dock and waterfront production facility at Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility.

Today's fiscal and readiness challenges compel the Navy and Marine Corps to pursue new ways to reduce the cost to operate shore installations through innovative facility investments, modernized business practices, alternative financing, and partnerships. We appreciate the

authority granted by Congress to use Intergovernmental Support Agreements to partner with a state or local governments to obtain installation support services, and which often generates considerable savings for our installations. In November 2021, Naval Air Station Corpus Christi entered into an IGSA with Nueces County for the county to provide potable water, respond to emergency outages, and recapitalize the installation's drinking water distribution system for the next 10 years.

We continually seek to cultivate partnerships with the communities that host our military installations to ensure Navy and Marine Corps installations are ready to respond to national security requirements as well as the needs of the community. We saw an example of the power of these partnerships in action in November 2021, when Naval Base Ventura County in California activated a standing Joint Use Agreement with the local port authority to help reduce the shipping congestion in Los Angeles County's major ports as the nation faced supply chain challenges. Vessels arriving into the Port of Hueneme were able to unload their containers at Naval Base Ventura County before continuing on to Los Angeles County to avoid the backlog of ships farther south. The DON is also working closely with our surrounding communities to implement the Defense Community Infrastructure Pilot (DCIP) program, which provides construction funds to states and communities to address deficiencies in community infrastructure that support military installations. Defense communities surrounding Navy and Marine Corps installations performed very well in the 2021 DCIP program, earning nine of the 13 grants awarded across country. These projects ranged from the restoration of a beach and dune system to the mitigation of erosion problems near Joint Expeditionary Base Little Creek-Fort Story in Virginia, to the construction of a new fire station to support emergency response resources

provided to Marine Corps Base Camp Pendleton in California, to the expansion of wastewater treatment capacity in support of Naval Air Station Whiting Field in Florida.

Installation Resilience and Climate

President Biden, Secretary Austin, and Secretary Del Toro have all identified climate as a threat that confronts our national security and the ability of our military forces to perform their mission. For the DON, climate readiness is mission readiness; mitigation, adaptation and resilience are operational imperatives. Guided by President Biden’s Executive Order 14008 “Tackling the Climate Crisis at Home and Abroad” and Executive Order 14057 “Catalyzing Clean Energy Industries and Jobs through Federal Sustainability,” we are building a climate-ready and resilient force across the DON to drive innovation and efficiency, build new and expanded partnerships, increase the resilience of our infrastructure and systems, responsibly invest in alternative energy sources, conserve resources, reduce our carbon footprint, and lower our reliance on fossil fuels. The DON will soon publish our Climate Strategy, which will outline how we will expand and intensify our efforts to combat climate change across all sectors to ensure the Navy and Marine Corps maintain maritime dominance and remain a capable, agile, and lethal fighting force, ready and able to fight and win.

Climate change, sea level rise, and severe weather events directly impact the readiness of DON installations and operations today and will increasingly do so in the future. The Navy and Marine Corps are tackling these challenges holistically by incorporating installation resilience as a cross-cutting consideration in our decision-making processes for installation operations, master planning and the design, construction, and recapitalization of infrastructure. We are confronting

the destabilizing threat of climate with urgent resolve by adapting our operations, platforms, and infrastructure and mitigating the climate impacts of our actions.

As directed by the Fiscal Year (FY) 2020 National Defense Authorization Act (NDAA), the DON is adding a resilience component to our major installation master plans. Five Navy installations have completed draft resilience plans, and the Marine Corps recently awarded a contract to update two master plans to include new resiliency components. The DON is on track to incorporate resilience into the Naval Base San Diego in California and Marine Corps Recruit Depot Parris Island in South Carolina master plans by the end of 2022. I had the opportunity recently to visit both of these installations and talk to the leadership there, and I look forward to seeing the benefits the DON will gain from updated resilience planning in these locations.

During the planning and design phase of new facilities and major recapitalization projects, the DON's facility planners and engineers use sea level rise scenarios in the DoD Regional Sea Level Rise database to ensure designs can mitigate and withstand potential flooding. Under SIOP, each of the Navy's four public shipyards will undergo a sea-level rise study so that shipyard Area Development Plans will incorporate sea level rise mitigation.

The DON has leveraged military construction planning and design funds, which were added by Congress in FY 2021 and FY 2022 specifically for installation resilience, to conduct studies, update resilience design standards and invest in tools to enable technical experts DON-wide to proactively and comprehensively address a full range of installation resilience threats and vulnerabilities. The DON continues to employ the authorities granted to us by Congress to execute Intergovernmental Support Agreements, Utility Privatization, Energy Savings Performance Contracts, Utility Energy Service Contracts, and Enhanced Use Leases. We have already seen many successes using these authorities, and we have awarded more than \$3 billion

to date in Energy Savings Performance Contracts and Utility Energy Service Contracts, utilizing private sector expertise and funding to modernize infrastructure and reduce energy consumption and greenhouse gases. In September, the DON awarded a Utility Energy Service Contract to bring energy upgrades to Naval Air Station Joint Reserve Base New Orleans in Louisiana. The project will design and install energy conservation measures at 86 facilities across the installation – such as heating, ventilation and air conditioning upgrades, interior lighting, solar-powered streetlights; modernized transformers and high-efficiency water fixtures – and is projected save to about \$650,000 annually in electric energy, electric demand, natural gas, water, and maintenance savings.

We are also expanding partnerships and installing advanced technology at our installations – such as non-intrusive energy load monitoring, distributed power generation, smart grids, and microgrids – to increase energy efficiency and provide reliable energy for our critical-mission infrastructure. In December, the DON and the California Energy Commission (CEC) signed a Memorandum of Understanding (MOU) that will help the Navy and Marine Corps and the state collaborate on energy and water-related projects at DON installations. The MOU, which I co-signed with the Chair of the CEC, renewed the cooperation between the DON and California for another five years. This team meets on a monthly basis and facilitates increased coordination and collaboration to help Navy and Marine Corps installations in California address energy resilience, climate initiatives, fossil fuel reduction, greenhouse gas reduction, water consumption, and alternative-fuel vehicles.

Protect the Safety and Health of our People and Communities

The DON remains committed to the health and safety of Sailors, Marines, Civilians, their families, and the communities in which they serve. Although work remains, we are beginning to see sustained improvement in the operation, maintenance and customer service in privatized family housing. Over the last six months, I have visited Navy and Marine Corps installations and seen installation commanding officers are personally involved in resolving privatized housing issues and advocating for military families. Also, I have talked to the residents to hear what we are doing right and what we can be doing better. Thanks to the support of Congress, we have added housing advocates in our housing offices to better support our Sailors, Marines, and their families through better oversight, quality control, and support at the installation, regional and headquarters levels. In addition to annual surveys, the Navy and Marine Corps have added additional performance measures such as point-of-contact surveys for move-in readiness and maintenance performance. In September, the DON awarded a contract to an engineering service firm to perform a third-party inspection of our privatized housing inventory. Finally, we continue to provide reviews of the financial health of DON Public-Private Venture housing projects to ensure these partnerships can be sustained long-term. Leadership at all levels throughout the DON are focused on getting this right for our people.

As the Department is now seeing sustained improvement in the quality and resident satisfaction of privatized family housing, it is clear more work is needed to improve the unaccompanied housing for our Sailors and Marines. The recent issues uncovered at Naval Support Activity Bethesda serve as a poignant reminder of under-sustaining unaccompanied housing and the negative impact it has on the morale and readiness of our service members. We are working to make sure that our unaccompanied Sailors and Marines have the healthy and safe quarters that meet modern living standards which they deserve. I appreciate Congress's interest

in this area and the DON is committed to increasing leadership and oversight of unaccompanied housing and to prioritizing the recapitalization of barracks within the planning and programming process. In accordance with the FY 2022 NDAA, I have directed the Navy and Marine Corps to perform a comprehensive review of the condition of unaccompanied housing and to provide a 10-year plan to address facilities that are in unsatisfactory condition.

As we focus on the safety and health of our people in their homes, the Department also is taking action to enhance the safety of our people in the workplace. Compelled by recent safety mishaps and the Vice Chief of Naval Operations' Major Fires Review, DON's new Safety Management System will encourage learning, identify and manage risk at the appropriate level, identify problems, and provide assurance and controls at every level. The transformation of the Naval Safety Center into the Naval Safety Command in February 2022 is a key step forward in the Department's adoption of a new safety paradigm. With increased authority, the Naval Safety Command will promote rapid learning, build resilience across the force, and enable a sustained culture of excellence. We want to empower all Sailors, Marines, and Civilians to think critically about risk. This approach includes assessment and communicating risk up and down the chain of command so that leaders can implement effective controls and so that – as a Department – we can create a community and culture of learning. Finally, together with the Vice Chief of Naval Operations, I serve as the co-chair of DON's new Learning to Action Board, which provides a structure, process and forum to drive transparency and accountability for implementing recommendations from external reviews, investigations, reports, and studies.

Together with our partners, the Department is working hard to protect our people and communities from chemicals of emerging concern, such as per- and polyfluoroalkyl substances (PFAS). The DON is implementing a comprehensive strategy to manage and address known or

potential releases of PFAS at Navy and Marine Corps installations. This includes testing drinking water for perfluorooctane sulfonic acid (PFOS)/perfluorooctanoic acid (PFOA), and identifying, evaluating, and addressing PFAS releases resulting from DON activities. Over the past year, the DON installed systems near two closed installations to treat municipal water wells that have been impacted by the Department's prior releases of PFAS. Finally, the DON continues to support DoD's research and development effort to identify suitable replacements to transition to a PFAS-free firefighting alternative on installations.

Stewardship of the Environment as a Strategic Asset

The Navy and Marine Corps are enhancing mission effectiveness through the thoughtful and deliberate implementation of environmental programs to meet mission requirements, avoid and reduce future liabilities, build trust and equity with stakeholders, and protect the environment where we live, work, and train. To help advance and preserve mission readiness, the DON uses the Readiness and Environmental Protection Integration (REPI) program to achieve mutually beneficial, sustainable communities near our installations and ranges by leveraging shared resources and partnering with local governmental and non-governmental organizations. Since 2003, DON's REPI program has protected more than 200,000 acres of land around key installations and ranges to enhance military installation resilience, promote compatible land uses, and preserve habitat to relieve existing or prevent future restrictions on military activities. In January 2022, the DON and Beaufort County partnered to purchase a conservation easement on 2,068 acres near Marine Corps Air Station Beaufort in South Carolina to preserve the installation's mission and permanently protect the land from commercial development. In September 2021, the DON joined forces with the U.S. Fish and Wildlife Service, the United

States Department of Agriculture Forest Service, the Georgia Forestry Commission, conservation groups, and private foundations to conserve more than 27,000-acres of land, protecting the mission of Naval Submarine Base Kings Bay from incompatible development while also preserving a vital habitat for a number of threatened and endangered species.

Competition for land, air, and sea space is growing, and the DON is mindful of the compatibility of current or future activities or developments that could impact military operations, training and testing. The DON and DoD are working collaboratively with the DOI and the Bureau of Ocean Energy Management to support the Nation's growing offshore wind energy industry while ensuring wind energy development is compatible with national defense requirements.

Conclusion

I appreciate the ongoing commitment and attention of this committee, and I thank you for the opportunity to discuss the DON's EI&E portfolio. In coordination with our stakeholders and partners, the DON remains focused on ensuring our regions, installations, and stations build, train, and equip the world's most powerful naval force to meet both today's operational demands and the warfighting needs of the future.

Meredith A. Berger
Assistant Secretary of the Navy
(Energy, Installations and Environment)

The Honorable Meredith A. Berger assumed the responsibilities of the Assistant Secretary of the Navy for Energy, Installations & Environment on July 28, 2021. She is responsible for providing oversight and policy for Navy and Marine Corps energy and climate resilience; infrastructure sustainment, restoration and modernization; military construction; acquisition, utilization and disposal of real property and facilities; environmental protection, planning, restoration and natural resources conservation; and safety and occupational health.

Ms. Berger has served in a variety of policy and senior leadership positions in both federal and state government and the private sector. Before her nomination, Ms. Berger was a senior manager for the Defending Democracy Project at Microsoft Corporation. She was a Fellow with the Harvard Kennedy School's Belfer Center for Science and International Affairs.

Ms. Berger was Deputy Chief of Staff to Secretary of the Navy Ray Mabus, advising the Secretary on the formulation and execution of Department-wide strategy, policies, plans, and standards. Ms. Berger also served as a Department of Defense Fellow.

Prior to her tenure with the Department of the Navy, Ms. Berger held policy positions with the Environmental Protection Agency and the Office of the State of Florida Chief Financial Officer.

Ms. Berger holds a master's degree in Public Administration from the Harvard Kennedy School, a Juris Doctor from Nova Southeastern University, and a Bachelor of Arts in American Studies and Spanish from Vanderbilt University. She has earned the Secretary of the Navy Distinguished Civilian Service Medal, Secretary of Defense Medal for Exceptional Public Service, and the EPA Gold Medal for Exceptional Service.

Updated: August 6, 2021

DEPARTMENT OF THE AIR FORCE PRESENTATION
TO THE SUBCOMMITTEE ON READINESS
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: DEPARTMENT OF THE AIR FORCE ACTING ASSISTANT SECRETARY OF
THE AIR FORCE FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT WRITTEN
TESTIMONY FOR AN ENERGY, INSTALLATIONS, AND ENVIRONMENT PROGRAM
UPDATE

STATEMENT OF:

MR. EDWIN OSHIBA
ACTING ASSISTANT SECRETARY OF THE AIR FORCE FOR
ENERGY, INSTALLATIONS, AND ENVIRONMENT
DEPARTMENT OF THE AIR FORCE

March 16, 2022

NOT FOR PUBLICATION UNTIL RELEASED BY
THE COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

Introduction

Chairman Garamendi, Ranking Member Waltz, and distinguished members of the Subcommittee. Thank you for the opportunity to discuss Department of the Air Force (DAF) energy, installations, and environment programs. Installations are platforms to enable and project combat power. Every DAF mission starts and ends on an installation. We train and equip for joint operations, project power, generate readiness, test new weapon systems, and provide safe and healthy communities at our Air and Space Force installations. DAF installations also serve as key nodes in a global network of operating locations enabling Joint Force mission success around the world. Additionally, for a significant number of our 500,000 Airmen, Guardians, and their families, DAF installations are “home.” Hence, the readiness, resiliency, and sustainability of installations are matters of strategic importance.

Our Nation faces the nexus of complex challenges: the rise of great power competition with China and Russia; the increasing complexity of multi-domain threats; fiscal pressures; the competition for access to resources in the Global Commons; and the increasing rate of technology change. Finally, we continue to experience the effects of changing climate, exemplified by the growing strength and frequency of extreme weather events, wildfires and droughts. Unmitigated, these endanger not only our Airmen and Guardians, and the places where they live and work, but our weapon systems, infrastructure, and water and power networks.

In the face of these challenges, the DAF has made hard choices to prioritize decisions focused on integrated deterrence in an environment of shrinking advantage against aggressive competitors, operating in an evolving natural environment. The DAF Military Construction (MILCON) program prioritizes nuclear enterprise modernization and Combatant Command (CCMD) infrastructure support in the European and Pacific theaters. We also fund high return-on-investment operational energy initiatives, which increase our readiness and provide more combat capability for every gallon of fuel consumed while simultaneously reducing greenhouse gas (GHG) emissions. Furthermore, we preserve the well-being and quality of life of our service members and their families through investments in housing, dormitories, child development centers (CDCs), and community support facilities. We remain committed to sustaining the DAF’s power projection and enabling platforms—our installations—and appreciate the continued partnership with Congress to ensure Air and Space Forces are well-postured to compete, deter and

win.

Installations

The DAF continues to balance risk in installation investment in order to prioritize resources to our most mission-critical needs, ensuring the Department can continue to deliver combat capability to the Joint Force. The DAF is performing installation investment through implementation of our Infrastructure Investment Strategy (I2S), increased senior leader oversight of the portfolio, and reforms within our MILCON program. First introduced in 2019, the I2S is the Department's long-term strategy to cost-effectively modernize and restore infrastructure readiness, improve the resiliency of mission-critical nodes, and drive innovation in installation management practices.

In an effort to leverage advanced infrastructure risk analytics, the DAF continues to develop predictive models which use current building condition information to advance requirements. As a result, the DAF developed our first five-year Integrated Priority List (IPL) for Facilities Sustainment, and Restoration and Modernization (FSRM) projects for the FY21-25 program and continues it this year. It is a key step in our intentional shifting from a "worst-first" prioritization approach to investing at the optimal time of the lifecycle for a facility.

DAF senior leaders oversee I2S implementation efforts through the biannual Infrastructure Program Management Review, where we review and provide guidance on the direction of I2S initiatives. In order to assess the impact of funding and asset management practices on infrastructure readiness, the DAF developed a series of metrics. These metrics quantify the impact of I2S policies on infrastructure condition, investment decisions, facility space use, and MILCON cost growth. Assessing the impact of I2S initiatives on a regular basis allows senior leaders to make timely decisions that affect not only execution of the program but future budget decisions as well.

Operational Energy

Our Joint Force wargames have highlighted the critical need to defend our energy networks at home and abroad, from our bases to forward deployed locations. Contested and competitive operating environments and the changing geopolitical landscape threaten our fuel and power supplies like never before. The DAF does not—and will not—have undisputed access to the substantial energy resources we require to operate around the world. In order to achieve our global mission, warfighters must have assured access to energy resilient to all hazards and threats.

In light of this, the DAF infuses energy considerations into the strategic planning process while investing in energy Research, Development, Test, and Evaluation (RDT&E). We aim to ensure the acquisition system values and enhances the energy supportability of future platforms and operations, considering a full range of resilient, cyber-secure, and sustainable energy solutions to meet the needs of mission critical functions while decreasing energy demand where possible. Through exercises, wargames, and modeling and simulation, we are incorporating energy resilience into emerging joint operational concepts to better identify and mitigate risk.

Tackling the Climate Crisis

Last fall, the Secretary of Defense released the DOD Climate Adaptation Plan and DOD Climate Risk Analysis, emphasizing climate as a national security priority. Over the past several years, we have seen first-hand the impacts climate and severe weather can have on our installations and operations. Increasing temperatures, changing precipitation patterns, and more extreme and unpredictable weather conditions pose new risks to DAF operations, readiness, installations, and facilities. The effects of climate change on the DAF are accelerating; the time for action is now. As the largest fuel consumer in the DOD, the DAF is not only addressing the need for climate adaptation to improve our resilience, but introducing climate mitigation efforts to optimize fuel consumption and reduce our logistics burden, while simultaneously reducing greenhouse gas emissions. Additionally, the DAF is developing a comprehensive Climate Action Plan aligned with our national security imperatives that lays out our climate priorities and actionable goals to address the complex threat of climate change.

In recent years, Congress has included numerous provisions in legislation to enhance installation resilience efforts across the Department of Defense. The DAF, in conjunction with the Office of the Secretary of Defense (OSD), is implementing these provisions. We are incorporating climate and energy resiliency considerations into Installation Development Plans (IDPs), while over 90 locations completed the hazard screening and risk assessment portions of the *DAF Severe Weather and Climate Hazard Screening and Risk Assessment Playbook*. The *Playbook* gives installation-level planners a consistent and systematic framework to screen for severe weather and climate hazards and assess current and future risks. We will include these results into Installation Climate Resilience Plans (ICRPs), serving as the military installation resilience component of our major military installation master plans by the end of FY25. Additionally, we completed 52 Installation Energy Plans in 2021 to identify risks and track and adjust requirements to advance

energy and water resilience goals.

The DAF is integrating resiliency considerations into MILCON and other construction projects as well. We assess all projects to determine if the planned facility could be impacted by current or future mean sea level fluctuations or if it is located in a 100-year floodplain for non-critical facilities and a 500-year flood plain for critical facilities. We implement resiliency actions when required by the mission or when feasible and cost-effective. The DAF drives changes to the Unified Facilities Criteria (UFCs) and then applies those revised building codes to all MILCON projects. Many of these UFCs have been updated to specifically incorporate resilience considerations, such as sea level rise scenario planning and updated structural engineering criteria to address wind, seismic, and flood threats.

The DAF is also incorporating operational energy efficiency initiatives to reduce risk to the warfighter, increase lethality, and reduce our climate impact. We are working to implement a number of energy-informed solutions into operations that will increase aircraft range, streamline mission execution, and improve readiness, while also mitigating greenhouse gas emissions.

To help address these challenges, the DAF is prioritizing the development of a climate-informed workforce, and leveraging data and analytics to make climate-informed decisions. Creating a climate literate workforce is fundamental to finding solutions to the climate crisis. The DAF must educate the force, including senior leaders, to create a culture where Airmen and Guardians understand the implications of climate change and are capable of making climate-informed decisions. Climate considerations will continue to be incorporated into our guidance, plans, and policies to ensure our Air Force and Space Force investments in facilities, infrastructure, and installation energy promote resilience to more frequent and severe weather events, while maximizing our readiness with a reduced energy footprint.

Special Interest Items

Winter Storms of 2021

Winter storms in early 2021 throughout much of the Midwest and southern United States had a considerable impact on DAF installations, with damage amounting to \$330 million at 24 installations. A majority of the damage resulted from burst water and fire suppression lines due to freezing. Our personnel prepared our installations admirably, but numerous factors—including

sustained periods of extreme cold, degraded facilities and infrastructure, and off-base power and water supply issues—led to damage and temporary interruptions. Several installations experienced limited power or water interruptions consistent with interruptions experienced in their local communities. Back-up energy sources and contingency plans, as well as effective coordination with commercial power and water suppliers, were generally effective in minimizing the length and impact of utility interruptions. In some cases, such as at Offutt AFB, installations used on-base power plants and generators to supply their own power. These efforts were instrumental in helping the utility provider stabilize the power grid and minimize rolling blackouts in the community.

Natural Disaster Recovery Efforts

Through the Natural Disaster Recovery program, the DAF will rebuild Tyndall AFB, FL, and Offutt AFB, NE, in a more efficient and resilient manner. We are designing and constructing facilities using the latest UFCs. To buttress Tyndall AFB from future effects of climate change, the DAF made a policy decision to design beyond the minimum UFC criteria for civil and structural engineering. We used a minimum design wind speed of 165 miles per hour for all new facilities, exceeding the highest wind speed captured during Hurricane Michael, and incorporated best practices from the Florida Building Code’s High Velocity Hurricane Zone for Miami-Dade, Broward, and coastal Palm Beach Counties. Facilities are also being designed 14 to 19 feet above today’s mean sea level, which incorporates a 7-foot projected sea level rise scenario through the year 2100.

Additionally, we emphasized coastal resiliency in the plan for Tyndall AFB. This partnered approach includes cost-shared investments, which combine with DAF investments to attenuate storm energy through natural infrastructure before it reaches built infrastructure. Key partners such as the Defense Advanced Research Projects Agency, Fish and Wildlife Service, Bay County, the Florida Department of Environmental Protection, and the University of Florida are working together as part of OSD’s Readiness and Environmental Protection Integration Program. We are exploring several low life-cycle cost “Engineering with Nature” initiatives, to include sand fencing, submerged shoreline stabilization, living shorelines, oyster reefs, and marsh and seagrass enhancements.

At Offutt AFB, we are consolidating facilities to higher ground—out of the 100-year floodplain. Where relocation is not possible due to mission requirements, we are raising the

finished floor elevation above the floodplain and building in a way to minimize clean-up should flooding occur again.

Taking Care of People

In early 2020, the DAF established a cross-functional Child Care Capacity Initiative Working Group to address unmet child care needs. This team prioritized child development and school age care facility projects based on unmet child care demand, staffing, and building conditions. We issued a Strategic Enterprise Executive Decision memo directing installations to initiate planning actions for 14 projects identified on the prioritized list. The DAF is using the \$11 million in MILCON P&D funds provided in FY20 to initiate designs and posture these projects for future execution. Five of our top priority child development centers (CDCs)—Sheppard AFB, TX; Joint Base San Antonio (JBSA)-Lackland, TX; JBSA-Fort Sam Houston, TX; Wright-Patterson AFB, OH; and Royal Air Force (RAF) Lakenheath, in the United Kingdom—were authorized in the FY22 NDAA. Construction of a new CDC at Tyndall AFB is scheduled to be complete by December 2022, and construction of a new CDC at Joint Base Andrews, MD, is expected to be ready to award in the summer of 2022. Because CDCs have not historically competed well against other mission-related priorities in the MILCON program, we have turned to FSRM resources to address childcare facility concerns while we posture MILCON projects for future execution. We will have 10 FSRM projects, valued at \$38 million, ready to award in FY22, pending appropriations.

The DAF is also committed to ensuring unaccompanied service members are provided quality housing on our dormitory campuses. The Department has underscored the roles and responsibilities of Commanders in protecting the health and safety of unaccompanied Airmen and Guardians. Commanders enforce inspection criteria to identify and report conditions requiring immediate and future maintenance, as well as adequately resource maintenance and repair programs to effectively address requirements. Funded from the DAF FSRM account, the investment strategy for dormitories focuses on restoration and modernization of these facilities in their existing configurations. This enables the DAF to focus MILCON funds on modern, formal training facilities for newly recruited Airmen, such as the Airman Training Center at JBSA-Lackland.

Space Force

In accordance with Department of Defense direction that the Space Force be established as a lean, agile, mission-focused military Service, the Space Force will rely on the Air Force for infrastructure, logistics, security, medical services, and a host of other support functions at their bases. Formal agreements and implementation plans are in place to codify all stakeholder roles and responsibilities. In FY22, the DAF will transfer FSRM, unaccompanied housing, and facilities operations funds to the Space Force for execution. The Space Force also developed a separate governance process for their infrastructure investments, leveraging current DAF processes, to ensure strategic alignment of investments to Space Force priorities.

FY22 MILCON Program

In FY22, the DAF MILCON request was \$2.38 billion, approximately double the FY21 enacted amount. This return to previous funding levels will support the DAF's commitment to fulfilling 2018 National Defense Strategy (NDS) requirements, posturing for the future high-end fight, and taking care of our Airmen, Guardians, and their families.

The program supports Combatant Commanders with a focus on the Pacific and European theaters and modernizing the nuclear enterprise. Our request also focused on P&D to reinforce the Department's MILCON program stability and consistency. Additionally, the MILCON program continues efforts to bed down new weapons systems and seeks to recapitalize facilities that have outlived their useable life or no longer meet mission requirements.

Combatant Commander Infrastructure

The FY22 MILCON program prioritized Combatant Commander requirements with a particular emphasis on the Pacific and European theaters. Support to U.S. Indo-Pacific Command will enhance the United States defensive posture in the region, reassure allies and partners, and increase readiness capabilities. The request included \$545 million for projects in Alaska, Guam, Japan, and Australia to recapitalize key facilities, disperse resources, and construct operational facilities as well as Pacific-focused P&D. The request also included construction of three warehouses to store pre-positioned Airfield Damage Repair equipment and materials in Guam and Japan, aircraft operations and maintenance facilities in Australia and Japan, munitions storage structures in Guam and Japan, and a runway extension to increase airfield capacity in Alaska.

The DAF remains committed to European Defense Initiative (EDI) efforts to reassure North Atlantic Treaty Organization (NATO) allies and other European partners of United States commitment to collective security and territorial integrity. In FY22, the DAF requested \$184.4 million for EDI and other European theater projects to include support for the prepositioning of equipment in the United Kingdom, as well as airfield upgrades in Hungary and Spain. These projects will further improve deterrence efforts in the theater and enable joint and coalition forces to quickly respond to aggressive regional actors. The DAF request also included support to Combatant Commands within the United States to include a continued focus on Weapons Generation Facilities and Joint Air Defense Operations which directly supports U.S. Strategic Command and U.S. Northern Command, respectively.

New Mission Bed Downs

The FY22 budget request also supported the bed down of new weapons systems and missions, with a heavy focus on modernizing the nuclear enterprise. The request included six projects at Ellsworth AFB, SD, to bed down the first B-21 Raiders, and three projects at Hill AFB, UT, and Vandenberg Space Force Base (SFB), CA, to support transition from the Minuteman III intercontinental ballistic missile weapon system to the Ground Based Strategic Deterrent (GBSD). The 2018 NDS directs the Department of Defense to build a more lethal force by modernizing key capabilities, the first of which are nuclear forces. Once on-line, these weapons systems will ensure the DAF can effectively supply two-thirds of the nation's nuclear triad well into the future.

The DAF appreciates the legislative authorities which posture the GBSD program for success. The FY21 NDAA provided significant flexibility for the Launch Facility/Launch Center conversion under MILCON authorization, authorized \$15 million of MILCON P&D for GBSD, enabled all GBSD construction to be carried out under direction and supervision by the Secretary of the Air Force, and allowed a single prime contractor to plan, design, and construct all GBSD projects. The DAF will continue to inform Congress on the Department's progress during design, construction, and commissioning of GBSD facilities.

The FY22 President's Budget also requested funding for two projects at RAF Lakenheath to construct operational facilities for the F-35A bed down. Additionally, the request reinserted two F-35A project at Luke AFB, AZ to provide flight training and planning space and additional maintenance capacity. Lastly, the budget request included a three-bay depot maintenance hangar

at Tinker AFB, Oklahoma to directly support reliable and responsive infrastructure for the KC-46A weapons system depot maintenance.

Existing Mission Recapitalization

The FY22 budget request also sought \$447.4 million to recapitalize facilities that surpassed their useable life or no longer met mission requirements. This request included additional funding for our Basic Military Trainee Recruit Dormitory modernization, to include reinserting Dormitory 7 back into the program at JBSA-Lackland. The Air Force previously cancelled Dormitory 7 to cover funding disconnects with the other dormitories in the program, but in FY22, the time was right to bring this requirement back into the budget to construct the final dormitory required for bringing new Airmen and Guardians into the Service. Other recapitalization projects included the Nuclear Command Control and Communications Acquisitions Management Facility at Hanscom AFB, MA, which provides a critical facility for the Air Force Nuclear Weapons Center, a crash fire rescue station at Joint Base Andrews, MD, and a gate project at Davis-Monthan AFB, AZ.

Planning and Design

P&D remains a central focus of the DAF MILCON program to reinforce program stability and consistency. Sufficient P&D enables projects to progress rapidly through design and meet maturity criteria for admissibility into the program, provides more accurate cost estimates, and maximizes opportunity to award projects in the year of appropriation. Without sufficient P&D, the DAF must award designs by design phase, which adds risk associated with costs and timely delivery of design. With the FY22 P&D request of \$229.3 million, the DAF intends to complete remaining design requirements for our FY22 program, fully fund designs for our planned FY23 and FY24 projects, and initiate design for FY25. The outcome of our two year budget lock policy is a stable MILCON program allowing us to efficiently use P&D for future projects.

Facilities Sustainment, Restoration, and Modernization (FSRM)

We view the FSRM and MILCON programs as interdependent; together, these two funding streams serve as the foundation of sustainable DAF installations. FSRM provides a non-MILCON pathway to repair facilities and infrastructure, maximizing their lifespan. The FY22 budget request of \$4.55 billion in FSRM funding was a 20% increase from FY21-enacted levels.

Our I2S drove changes in how we execute the FSRM program by prioritizing projects based on mission risk and timing investments at the optimal point in the asset lifecycle. The centralized FSRM scoring model targets investments at an asset's "sweet spot" in its life cycle rather than at end-of-life failure, which is significantly more expensive. FSRM funding distributed directly to installations (considered decentralized FSRM), empowers Commanders to make the right local investment decisions, including day-to-day maintenance and smaller scale repair and sustainment projects, based on mission requirements and I2S guidance.

The DAF will continue to utilize I2S principles to restore the health of our installations by refining business processes and implementing private sector best practices. These include implementing cost management strategies specific to different spending categories, leveraging data to improve the timing of sustainment and recapitalization actions, and establishing standards of services and equipment to achieve economies of scale. In order to maximize the near-term impact of current funding levels, the DAF will also continue to assess mission thread vulnerabilities and prioritize infrastructure repair requirements which directly affect an installation's primary mission.

Housing Construction and Operation and Maintenance

The DAF prioritizes providing safe and healthy homes to our families. The DAF Housing program provides for housing construction, P&D, and operations and maintenance. These funds will support a continued focus on eliminating inadequate housing from the DAF inventory and correcting health and safety deficiencies. The military family housing construction program enables planning studies and design for future construction projects, renovation of existing homes, and support the restructures of privatized housing projects.

The high cost of construction continues to present challenges to improvements of DAF-owned family housing. The increased cost of construction requires solutions within the DAF family housing construction program to include cancelling projects as a result of significant cost increases and using existing resources to achieve full scope on other projects. The DAF continues to focus investment in the DAF housing inventory to provide adequate housing for all service members and their families.

Our military family housing operation and maintenance enables us to sustain, improve, and modernize our Government-owned inventory of approximately 15,200 family housing units and provide enhanced oversight of over 55,000 privatized homes. Combined, the family housing operations and maintenance and construction programs will ensure continued support for the housing needs of Airmen, Guardians, their families, and our Army, Navy, and Marine Corps teammates housed in government-owned and privatized inventory.

Privatized Housing

The DAF is committed to ensuring that Military Housing Privatization Initiative (MHPI) projects provide safe, quality, well-maintained housing where military members and their families will want and choose to live. We remain focused on improving our privatized housing portfolio and addressing the remaining elements of the MHPI reforms set out in the FY 2020, FY2021 and FY2022 National Defense Authorizations Acts (NDAA). The DAF has made significant progress implementing reforms to enhance our oversight of privatized housing and hold MHPI companies accountable for delivering quality housing that provides a positive living experience for tenants.. An important effort is the DOD MHPI Tenant Bill of Rights. On August 1, 2021, DOD issued a revised and updated MHPI Tenant Bill of Rights that includes all 18 rights set out in 10 U.S.C. 2890. Applying many of these rights at existing MHPI housing projects requires voluntary agreement by the private companies who own, operate, and maintain the projects. Most DAF companies have agreed to implement all 18 rights at their existing projects. With few exceptions, all rights are fully available at all installations with DAF MHPI housing.

The DAF has improved oversight by adding 218 government positions across the privatized housing program, increasing inspections, providing additional training to housing personnel and revamping housing governance placing more structure to housing policy and management. Resident Councils have been established at DAF sites to provide two-way communication between the residents and installation and project owner leadership. Additionally, the feedback from tenant satisfaction surveys (work order and annual) are used to develop action plans for improving the resident experience. The DAF has also established Resident Advocates at DAF sites to engage with residents, installation leadership and MHPI companies and its property management representative to help resolve any disputes at the lowest level and improve

communications with all stakeholders. In addition, the DAF established a toll free housing call center where tenants have 24-hour access to elevate concerns.

The DAF has expanded its metrics for assessing the health of the privatized housing portfolio, particularly with regards to resident satisfaction, maintenance quality and responsiveness, and property management operations. Many of these business health metrics are now also included in the new Performance Incentive Fee (PIF) agreements DAF has negotiated with its largest private partners giving them a financial incentive to meet or exceed the standards established for our MHPI program.

Timeliness and thoroughness of repairs continues to be a challenge, compounded by the national labor shortage and complications posed by COVID; however, indications are that maintenance quality is holding steady or improving, as evidenced by work order survey data and Military Housing Office change of occupancy maintenance inspections. The DAF has implemented a Portfolio Assessment Program that places increased emphasis on maintenance performance and change of occupancy maintenance, driving engagement at all levels with the project owners to improve performance.

The DAF continues to remain focused on improved oversight, long-term project health, and sustainment of the housing inventory to provide military families access to safe, quality, affordable, and well-maintained housing communities where they choose to live. Some privatized housing projects will require financial restructuring to continue to remain financially stable and market comparable. The restructure goals are to fully fund operational expenses, debt servicing, and sustainment of the homes for the life of the lease and to fund reinvestment needs during the mid-term reinvestment period.

Environmental Stewardship

The safety and health of the Airmen and Guardians who work and live on our installations, their families, and the surrounding communities are DAF priorities. The FY22 budget request included \$302 million in funding for Environmental Restoration activities associated with the cleanup of active installations, including munitions sites, to meet our obligations to protect human health and the environment. The FY22 budget request also included \$445 million for Environmental Quality programs such as environmental compliance, environmental conservation,

and pollution prevention, and ensures environmental considerations are successfully integrated into the DAF mission and planning. The DAF greatly appreciates Congressional support for our efforts to address per- and polyfluoroalkyl substances (PFAS) and continue Environmental Restoration Program progress.

Environmental Restoration

The DAF currently has approximately 13,000 restoration sites at our active and closed installations. We remain focused on meeting our restoration obligations under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and under the Resource Conservation and Recovery Act (RCRA). The objectives of the investigations and environmental response actions performed under these statutes are to reduce risk to human health and the environment in a risk-based, prioritized manner. Recently, much of our restoration program focus has been on chemicals of emerging concern, most notably, PFAS. The DAF PFAS strategy is summarized below.

DAF PFAS Strategy

DAF began using aqueous film forming foam (AFFF) in accordance with the DOD MILSPEC, published in 1969. This legacy AFFF contained perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Evolving science has identified risks to human health after PFOS and PFOA exposure and regulatory standards are under consideration by the Environmental Protection Agency (EPA) and a number of states. The DAF PFAS Strategy has focused on PFOS and PFOA based on the EPA lifetime drinking water Lifetime Health Advisories (LHAs) for these compounds. Our primary objective under the DAF PFAS strategy continues to be ensuring that no one, on or off our installations, is drinking water with PFOS/PFOA concentrations above EPA's 70 parts per trillion LHA attributable to the DAF. The DAF PFAS strategy focuses on using CERCLA authorities to investigate, define, and, as necessary, ultimately remediate groundwater and soil impacted by DAF activities. The DAF also conducts a robust effort to communicate and collaborate with local communities, State and Federal agencies, and elected officials at all levels. Recognizing the DOD is only one source of PFAS, we are actively engaged with other government agencies working to identify and address other sources, exposure pathways for humans and the environment, and health effects of PFAS. The DAF framework guiding our response to PFAS issues is built on these themes: Protect Human Health; Communication and Collaboration; and a Whole of Government Approach.

In prioritizing CERCLA environmental response actions, the DAF uses a risk-based decision-making process with protection of drinking water as a top priority. Although the DAF does not program restoration funds by chemical, the DAF has obligated \$724 million as of the end of fiscal year 2021 identifying, investigating, and responding to PFAS releases, completing drinking water response actions at 38 installations (including implementing bottled water, point-of-use filtration, whole-house filtration, and municipal water supply hookups), and completing initial PFAS CERCLA Site Inspections at 92 installations. The FY22 NDAA authorized \$175 million to allow DAF to continue to address PFAS impacts at installation across enterprise. As of December 2021, the DAF had awarded CERCLA Remedial Investigation contracts for 79 DAF installations. While the DAF takes quick actions under CERCLA to address drinking water impacts, the remaining cleanup efforts are intended primarily to address PFAS in groundwater and soil, which can be technically complex and take a long time to complete.

The complex nature of the challenges posed by PFAS remediation and the evolving regulatory environment require the use of a Whole of Government Approach. To facilitate inter-Service coordination, DAF is an active member of the DOD PFAS Task Force, which works toward finding ways to mitigate and eliminate use of AFFF as currently formulated, understanding the impacts of PFAS on human health, and fulfilling cleanup responsibilities related to PFAS. The DAF also conducts a robust effort to communicate and collaborate with local communities, State and Federal agencies and elected officials.

Environmental Quality

The DAF ensures a resilient natural infrastructure and maintains sound environmental stewardship by funding compliance with applicable environmental laws. The environmental compliance program focuses on regulatory compliance for our air, water, and land assets. Examples of compliance efforts include detailed air quality assessments to analyze environmental impacts from DAF activities, sound management of our underground and above ground storage tanks, hazardous waste management and disposal, and ensuring environmental plans and permits are compliant and up-to-date.

Efforts in pollution prevention include maximizing the diversion of solid waste from landfills to reduce the volume and cost of disposal, recycling used oil, fluorescent light bulbs, and

spent solvents, and supporting our hazardous materials pharmacies to effectively reduce and safely manage the use of hazardous materials. We also continue to protect the health of our Airmen, Guardians, and the environment by making investments to minimize hazardous waste disposal through the demonstration and validation of new technologies.

We remain firmly committed to a robust program of conservation management covering a full suite of environmental, natural, and cultural issues. Prior appropriations have allowed the DAF to invest in conservation activities on and around our training ranges that provide direct support to mission readiness. The conservation program in FY22 supports ongoing habitat and species management efforts for 123 threatened and endangered species found across 54 DAF installations, and provides for continued cooperation and collaboration with the other military Services and with other federal government agencies such as the United States Fish and Wildlife Service. The DAF Cultural Resources Program supports mission needs through 119 Integrated Cultural Resources Management Plans. These plans work to preserve 7,066 historic buildings and structures and protect 22,559 archaeological sites. Recent efforts carried out at Eglin AFB, FL, is one such example of integrated conservation management. Archaeologists at Eglin teamed with biologists and conservationists from the Choctawhatchee Basin Alliance to construct a series of “Living Shorelines” to protect sensitive archaeological sites from shoreline erosion while also enhancing natural habitat and water quality.

Partnerships like these help us preserve cultural resources and provide effective ecosystem and habitat management, including wildland fire and invasive species management. These partnerships also support ongoing natural resource management efforts that focus on addressing imperiled and invasive species, critical habitats, and other key natural resources on installations to avoid or minimize mission impacts. Working collaboratively with the United States Fish and Wildlife Service through the DOD Recovery and Sustainment Partnership, the DAF enhanced mission operations and increased range access while protecting at-risk species leading to the proposed down-listing of one threatened and endangered species and the delisting of another.

The DAF remains committed to responsible environmental restoration and quality. As trustee for more than 8.3 million acres of land including forests, prairies, deserts, wetlands, and coastal habitats, the DAF understands the important role natural resources plays in maintaining our mission capability. To maintain military readiness the DAF needs realistic test and training environments, which themselves are ecosystems. Quite simply, if we do not maintain the

ecosystems we rely upon to continue our test and training mission, and clean up the impacts of past mission activities, we understand we will not be able to achieve or maintain military readiness.

Base Realignment and Closure (BRAC)

The BRAC cleanup program funds environmental restoration and property transfer activities at 34 former DAF installations closed through prior BRAC initiatives. Our BRAC cleanup program focuses on protecting human health and the environment, projects that transfer acreage and achieve beneficial reuse of property, and investigations and response actions associated with PFAS. Through the BRAC process the DAF has closed 40 installations and sites and transferred more than 98% of the property back to communities for beneficial use, producing \$2.9 billion in annual savings. Property transfer is complete for 35 former installations, and we expect to complete transfer of the remaining 1,840 acres at five former installations by 2027. The DAF greatly appreciates Congressional support for our efforts to address PFAS contamination and continue the cleanup and transfer of BRAC properties.

Installation Energy and Water Resilience

Reliable access to both quality power and water enables the DAF to continue its operational and training missions. The DAF views energy and water as both essential and linked resources, so any energy initiative implies consideration to water as well. Accordingly, the DAF established the vision of “Mission Assurance through Energy and Water Assurance.” This vision focuses on sustaining warfighting capabilities despite potential disruptions to enabling systems, like energy and water, while simultaneously optimizing the use of those resources through enhanced planning, technology, and process improvements.

The DAF assesses near- and long-term energy and water needs based on resilience, cost considerations, and the opportunity to leverage clean sources. Resilience is at the core of DAF’s assessments because the DAF seeks continual operations in the face of challenges and the ability to bounce back from adversity. All DAF installation energy and water projects must improve resilience in some capacity across the key attributes (the “5Rs”): robustness, resourcefulness, redundancy, response, and recovery. Qualifying resiliency projects include, but are not limited to microgrids, clean energy generation and storage, and energy conservation efforts.

Installation Energy Resilience

Energy enables DAF missions, so the DAF Installation Energy Program focuses on ensuring Air Force and Space Force installations have the requisite energy. The DAF applies the “5Rs” to assess gaps, prioritize energy projects, and ensure enabling system investments are effective in supporting mission needs in order to reduce potential vulnerabilities from energy and water. The “5Rs” help describe how a system plans for crises, with the preventative attributes of robustness, redundancy, and resourcefulness, as well as how the system functions during crises, with the performance attributes of response and recovery.

Natural hazards and adversarial threats pose a growing risk for prolonged power outages for installations. Using a mission thread perspective, the DAF is working to identify key nodes on and off installations that, in a denial-of-service scenario, may result in a significant impact on the DAF’s ability to deliver key capabilities. A comprehensive understanding of mission requirements, current system operations, accurate reporting, and historical outage data assist in identifying possible service vulnerabilities. Through increased investment in, and improved maintenance of, these energy systems, the DAF is striving to decrease the number of outages on installations.

The DAF is conducting Energy Resilience Readiness Exercises (ERREs) to help installations assess mission readiness during a controlled denial of service. Under an ERRE, also referred to as “pull-the-plug” and “black start” exercises, an installation intentionally shuts down its primary power for as long as 12 hours to test its onsite backup power systems and identify how infrastructure, mission interdependencies and enabling system capability will react during a denial of service. Through FY21, the DAF has completed six ERREs, including the DOD’s first joint base ERRE, the first concurrent exercise, and the first Control System Readiness Exercise. Future ERRE efforts could focus on carrying out the first regional exercise, as well as the creation of supplemental guidance highlighting lessons learned and best practices to enable more installations to conduct ERREs and enhance energy resilience.

Water Resource Management

The DAF is placing greater emphasis on water resilience, recognizing that water resources are finite yet essential to sustained mission capabilities. Water availability faces many threats

including aging infrastructure, scarcity, malicious attacks, natural hazards, changes in climate, rising costs of supply, quality issues, and encroachment. The DAF takes a risk-based approach to water management and linking water security more directly to mission assurance.

Current water initiatives include increasing transparency into mission needs and readiness, comprehensively identifying and assessing water risks, expanding external stakeholder engagement, analyzing capability gaps, and developing mitigation strategies. The DAF is currently developing its Installation Water Dashboard, an interactive data repository for all installations—Active, Guard, and Reserve—to streamline water data and reporting, is supporting the DAF’s goal of determining water vulnerabilities and supporting future water resilience planning. This Dashboard will enhance the DAF’s efforts to assess water risk and resilience and support mission assurance for all installations.

Installation Energy and Water Planning

Installation Energy Plans (IEPs) utilize a standardized framework based on the “5Rs” to integrate strategic guidance, plans, and policies into a holistic roadmap for each installation to advance mission critical energy and water goals. The DAF has completed 52 Installation Energy Plans through the end of FY21 and has approximately 150 resilience initiatives in development across the enterprise to address installation energy and water vulnerabilities identified through IEPs, ERREs, and mission thread analyses. By June 2022, all outside the continental United States priority installations and the top 75% of energy-consuming installations within the continental United States will complete IEPs to improve installation energy and water resilience.

Financing Energy and Water Infrastructure

The DAF Installation Energy Program does not have a dedicated budget line; rather, it relies on direct investment, third-party financing, and innovative funding solutions. Direct investment typically comes from FSRM, MILCON, or the Energy Resilience and Conservation Investment Fund (ERCIP). Third-party financing and other contracts include vehicles such as Energy Savings Performance Contracts (ESPCs), Utility Energy Service Contracts (UESCs), and Utilities Privatization contracts (UP).

Control Systems Cybersecurity & Resilience

Underpinning our installations are increasingly automated and interconnected control systems that, when vulnerable, open our multi-domain operations to adversarial cyber threats. In compliance with the FY17 NDAA, we have conducted assessments of critical infrastructure to

identify vulnerabilities. These assessments have exposed risks to missions we unknowingly accepted and validated the mitigation measures we were already pursuing to increase control systems' cybersecurity and resiliency. In March 2021, we published our DAF Strategic Plan for Control Systems, detailing a dynamic, unified, and enduring approach to protecting and defending these control systems, which assure our critical infrastructure and mission capabilities. Additionally, we published implementation guidance to strengthen energy and water control systems cybersecurity.

Climate Responsive Infrastructure

With renewed focus on climate impacts to mission, the Installation Energy Program is updating DAF policy, projects, and assessments to address climate response and support the Administration's current climate initiatives. The DAF continues to assess and manage risks associated with climate change. To ensure resilient, mission-critical facilities, the DAF is mitigating risks to vulnerable installation energy and water infrastructure, prioritizing efficient renewable energy technologies, and reducing greenhouse gas emissions where possible. Recently, the DAF announced a micro-reactor pilot project at Eielson AFB, AK, and Zero Emissions Vehicle pilot programs at Joint Base Andrews, MD, and Joint Base McGuire-Dix-Lakehurst, NJ, to deliver an alternative energy supply and support federal fleet electrification.

Operational Energy

As a critical enabler to our global mission, operational energy (aviation fuel and energy to power aircraft) comprised over 82% of the \$4.6 billion Air Force energy bill in 2020. To remain ahead of our adversaries in a complex and ever-changing battlespace, the DAF continues to develop a more agile and optimized approach to powering our aircraft and providing Airmen with fuel when and where they need it. Our FY22 budget requested \$49 million in funding for the research, development, acquisition, and operation of modern technologies, data analysis, and innovative process improvements that will enhance our combat capability, mitigate operational risk to the warfighter, and work to reduce our climate impact.

Optimal Operations Planning and Data Collection

The DAF is improving enterprise-wide fuel use data collection and conducting analyses to identify areas where existing missions can be performed more effectively with fewer resources.

We work with stakeholders across the DAF and DOD to implement efficiency best practices, support modernized information systems and software applications, and optimize mission planning and execution to maximize combat capability.

Our real-time data analysis capabilities have facilitated greater visibility into Air Force fuel use and have uncovered numerous opportunities to enhance operations through the efficient application of resources. For example, our analysis of C-17, KC-135, and B-52 data models correlates precision fuel planning (optimized fuel loads specific to each mission) with reduced maintenance costs and improvements in readiness metrics such as aircraft availability. Data analysis also allows us to assess the effects of energy optimization on combat capability in warfighting scenarios and demonstrates that more efficient air refueling not only decreases fuel demand and sortie requirements, but enables greater fuel offload, effectively doubling the efficiency gain.

Through 21st century tools and software, the DAF has established a pipeline to record and collect flight and fuel use data from multiple sources, enabling us to work with stakeholders across platforms and datasets. The collaborative environment allows us to better analyze operations, optimize aircraft fuel and load planning, and identify efficiency best practices to maximize aircraft reach and readiness. The recently developed software application “Magellan,” a long-range allocation and scheduling tool, now serves as Air Mobility Command’s (AMC) system of record for the Readiness Driven Allocation Process. The tool provides a single source and secure collaborative platform for the allocation of global mobility assets at AMC, optimizing processes and increasing the combat and training effectiveness of each aircraft.

The DAF anticipates the active fielding of an auto-planning capability within the tanker planning tool Jigsaw, to further optimize resource allocation and improve asset availability for the Combined Air Operations Center at Al Udeid Air Base, Qatar. Testing indicates the supplementary feature will improve the fuel efficiency of tanker plans by an additional 10% from Jigsaw’s baseline—the equivalent of removing up to five tankers from the average Air Tasking Order, which would enable crew reallocation and save approximately 400,000 gallons of fuel per week.

The remote, collaborative scheduling platform Puckboard is available to over 15,000 service members around the globe, supporting immediate forecasting decisions. The tool streamlines the aircrew scheduling process through secure remote access and will incorporate machine learning to automate and optimize a manually intensive process.

The DAF identified inefficient cargo load planning to be a recurring problem that hinders optimization of global airlift missions. We worked with stakeholders at AMC and Air Force Institute of Technology to identify elements of cargo planning that could be improved across the Air Force. With optimized cargo load plans, comes more efficient flight operations, and the possibility to decrease fuel use by increasing allowable cargo loads using fewer aircraft.

Additionally, the DAF is creating an incentive for planners and operators to use fuel more efficiently. We created the Mission Execution Excellence Program (MEEP) to promote a DAF culture of energy-awareness by incentivizing energy-optimized best practices, often utilized in the commercial aviation sector. This competitive, voluntary pilot program will encourage Airmen to apply fuel efficiency processes and behaviors during their day-to-day operations to save the DAF millions of dollars per year in unnecessary aviation fuel costs. Additionally, the decreased fuel use has a secondary benefit of mitigating an estimated 267,000 metric tons of greenhouse gas emissions per year. Future savings will be reinvested in tools and programs that enable efficient and resilient operations.

Finally, under the authority provided by Congress in Title 10 U.S.C. 2912, the DAF is implementing the Operational Energy Savings Account (OESA) program to further incentivize energy-aware behavior and processes. By documenting fuel savings from previous operational energy initiatives, the OESA allows those funds to be re-invested in other optimization efforts making it a self-sustaining program.

Weapon System Sustainment

The DAF depends on the readiness of our weapon systems to maintain global reach and power. Through partnerships with the aviation and commercial industries, we identify innovative solutions to modernize legacy aircraft and weapon systems while maintaining our lethality. We research and test 21st century technologies utilized by commercial airlines, such as infrared imaging, laser scanning of engine components, engine foam washing, and advanced manufacturing techniques for the cleaning, inspection, rework, and coating of engine compressor blades to determine whether these innovations can be applied to the DAF to optimize legacy engine performance.

Fuel Logistics and Alternative Fuels

The Air Force Operational Energy Office, the Air Force Petroleum Office, and the Air Force Research Laboratory (AFRL) continue to monitor and study advances in renewable and

alternative fuels to better understand their benefits and how they can potentially reduce the DAF fuel logistics footprint. Our research and analysis of conventional and alternative fuel certification processes, fuel additives, fuel transfer equipment, and fuel storage capacity, allows us to better identify logistical gaps and propose resiliency improvements to the jet fuel supply chain in energy-constrained environments, mitigating risk to the warfighter.

Energy-Informed Wargaming

We support the development and execution of DAF and joint-service wargames to analyze the jet fuel supply network in an energy-constrained environment and reduce operational risk to joint logistics. Through modeling and simulation tools, we increased our awareness of future energy requirements and the potential for fuel supply gaps, disruptions, and adversarial threats.

The results of the Air Force's Global Engagement and Long Duration Logistics Wargames, as well as the Joint Forces Energy Wargame, highlighted the criticality of energy distribution infrastructure and the necessity for energy planning across all phases of an operation. We continue to develop methods to analyze our strategic energy posture and the unique challenges in the Western Pacific and European theaters to inform infrastructure and capability investments.

Acquisitions and Capability Development

The DAF actively works to test, develop and field modern aerodynamic technologies on our legacy aircraft to reduce Department fuel costs. C-17 Microvanes, small fins placed on the aft fuselage of the aircraft to streamline airflow, reduce drag by 1%, saving roughly \$10 million per year in fuel costs. Additionally, simply adjusting the static orientation of windshield wiper blades on the KC-135 from horizontal to vertical is expected to save approximately \$7 million per year. Other technologies present opportunities to reap fuel savings and maximize tax-dollar utility.

Finally, the DAF guides acquisition policy to address operational energy requirements associated with new and major modification programs through the Energy Key Performance Parameter and Energy Supportability Analysis. We work closely with AFRL and Air Force Futures to push the technology envelope and help advance key disruptive technologies to maximize operational energy efficacy and outpace our competitors.

Conclusion

The DAF supported the President's Interim National Security Strategic Guidance and laid out a plan to modernize our military capabilities while taking care of our Airmen, Guardians, and families. The I2S continues to guide MILCON and FSRM budget decisions and business practices as we endeavor to deliver ready, resilient installations as cost effectively as possible. The MILCON program prioritizes nuclear enterprise modernization and supports Combatant Commanders, with particular focus on the European and Pacific theaters. The housing program provides the resources needed to sustain and improve the DAF's inventory of government-owned homes, and oversight of privatized housing project owners. The Department remains committed to overcoming challenges affecting this portfolio and delivering effective, efficient installation engineering services. The operational energy team is leveraging existing technologies to improve fuel efficiency of the legacy fleet, and advocating for advanced technologies to modernize the force and reduce greenhouse gas emissions. DAF energy, installation, and environment priorities ensure that our Airmen, Guardians, aircraft, and installations continue to be ready to defend American interests now and in the future.

Thank you for the opportunity to discuss DAF's programs supporting energy, installations, and environment. We appreciate Congress' continued support for our enterprise and look forward to working with you.

Edwin H. Oshiba

Edwin H. Oshiba, a member of the Senior Executive Service, is the Acting Assistant Secretary of the Air Force for Energy, Installations, and Environment, Department of the Air Force, the Pentagon, Arlington, Virginia. Mr. Oshiba is responsible for the formulation, review and execution of plans, policies, programs and budgets to meet Air Force installations, energy, environment, safety and occupational health objectives.

Mr. Oshiba was commissioned in the Air Force in 1989 upon graduation from Santa Clara University. He commanded three civil engineer squadrons and an expeditionary Prime Base Engineer Emergency Force, or Prime BEEF, group and served in a variety of positions at garrison, major command and Headquarters U.S. Air Force levels. He retired in 2015 at the rank of colonel and has since served as the Deputy Director of Civil Engineers, Deputy Chief of Staff for Logistics, Engineering and Force Protection, Headquarters U.S. Air Force, Arlington, Virginia, and Director, Air Force Civil Engineer Center, San Antonio, Texas. In his latest position as Director of Resource Integration, Deputy Chief of Staff of Logistics, Engineering and Force Protection, Headquarters U.S. Air Force, he was responsible for the planning, programming and budgeting of weapons systems sustainment, equipment, and logistics and installations resource requirements. In this role, Mr. Oshiba monitored performance of operations and maintenance, working capital funds and investment programs, participated in program and financial review groups and advocated for financial adjustments to optimize force readiness. He also oversaw preparation and defense of these Air Force programs for the Office of the Secretary of Defense, Office of Management and Budget and Congress.

EDUCATION

1988 Bachelor of Science, Electrical Engineering, Santa Clara University, Calif.
 1996 Squadron Officer School, Maxwell Air Force Base, Ala.
 1997 Distinguished Graduate, Master of Science, Engineering and Environmental Management, Air Force Institute of Technology, Wright-Patterson AFB, Ohio
 2003 Master of Military Operational Art and Science, Air Command and Staff College, Maxwell AFB, Ala.
 2008 Air War College, Maxwell AFB, Ala., by correspondence
 2010 Master of Science, National Security Strategy, National War College, Fort Leslie J. McNair, Washington, D.C.
 2019 Vanguard Senior Executive Development Program
 2020 Advanced Senior Leader Development Seminar

CAREER CHRONOLOGY

February 1989–July 1992, Chief of Readiness, Electrical Design and Utilities Engineer, 96th Civil Engineering Squadron, Dyess Air Force Base, Texas (deployed as Operations Officer, Riyadh Air Base, Kingdom of Saudi Arabia)
 July 1992–July 1994, Engineering Flight Commander and Chief, Contract Management, 8th Civil Engineer Squadron, Kunsan Air Base, South Korea
 August 1994–May 1996, Executive Officer to The Command Civil Engineer, and Unaccompanied Housing Manager, Headquarters Air Force Space Command, Peterson AFB, Colo.
 May 1996–December 1997, Student, Graduate Engineering and Environmental Management, Air Force Institute of Technology, Wright-Patterson AFB, Ohio
 December 1997–June 2000, Chief, Maintenance Engineering, and General Officer Quarters Manager, 1st Civil Engineer Squadron, Langley AFB, Va. (deployed as Base Civil Engineer, Doha AB, Qatar)
 June 2000–July 2002, Operations Flight Commander, 2nd Civil Engineer Squadron, Barksdale AFB, La. (deployed as Civil Engineer Commander, 355th Air Expeditionary Group, and Base Civil Engineer, Masirah Island AB, Sultanate of Oman)
 August 2002–June 2003, Student, Air Command and Staff College, Maxwell AFB, Ala.
 June 2003–June 2005, Bases and Units Program Manager, and Base Realignment and Closure 2005

Analysis Team Chief, Office of The Civil Engineer, Deputy Chief of Staff for Installations and Logistics, Headquarters U.S. Air Force, Arlington, Va.

July 2005–May 2006, Commander, 347th Civil Engineer Squadron, and Base Civil Engineer, Moody AFB, Ga.

May 2006–September 2006, Commander, 376th Expeditionary Civil Engineer Squadron, and Base Civil Engineer, Manas AB, Kyrgyz Republic

September 2006–July 2007, Commander, 23rd Civil Engineer Squadron, and Base Civil Engineer, Moody AFB, Ga.

July 2007–July 2009, Commander, 375th Civil Engineer Squadron, and Base Civil Engineer, Scott AFB, Ill.

August 2009–July 2010, Student, National War College, Fort Leslie J. McNair, Washington, D.C.

August 2010–August 2011, Commander, 577th Expeditionary Prime BEEF Group, Bagram Airfield, Afghanistan

September 2011–March 2013, Installation Support Panel Chair, Deputy Chief of Staff, Strategic Plans and Programs, and Chief, Installation Support and Strategy Branch, Office of the Air Force Civil Engineer, Deputy Chief of Staff for Logistics, Installations and Mission Support, Headquarters U.S. Air Force, Arlington, Va.

April 2013–September 2014, Chief, Installation Strategic Plans and Programs Division, Office of the Air Force Civil Engineer, Deputy Chief of Staff for Logistics, Installations and Mission Support, HAF, Arlington, Va.

October 2014–February 2015, Chief, Installation Strategy and Plans Division, Directorate of Civil Engineers, Deputy Chief of Staff for Logistics, Engineering and Force Protection, HAF, Arlington, Va.

February 2015–January 2018, Deputy Director of Civil Engineers, Directorate of Civil Engineers, Deputy Chief of Staff for Logistics, Engineering and Force Protection, HAF, Arlington, Va.

February 2018–November 2018, Director, Air Force Civil Engineer Center, Air Force Installation and Mission Support Center, Air Force Materiel Command, Joint Base San Antonio-Lackland, Texas

November 2018–January 2022, Director of Resource Integration, Deputy Chief of Staff of Logistics, Engineering and Force Protection, HAF, Arlington, Va.

February 2022–present, Acting Assistant Secretary of the Air Force for Energy, Installations, and Environment, the Pentagon, Arlington, Va.

AWARDS AND HONORS

Presidential Rank Award (Meritorious)

Legion of Merit

Bronze Star Medal with oak leaf cluster

Meritorious Service Medal with silver oak leaf cluster

Air Force Commendation Medal with oak leaf cluster

Navy and Marine Corps Commendation Medal

PROFESSIONAL MEMBERSHIPS AND ASSOCIATIONS

Society of American Military Engineers

(Current as of February 2022)

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

APRIL 2, 2009

QUESTIONS SUBMITTED BY MR. WILSON

Mr. WILSON. BACKGROUND—The principal source of furnished energy for the U.S. facilities in Germany is predominantly sourced from the German national natural gas grid. The accelerating concern of the Congress on the issue was state in four successive NDAA acts in recent years. The German region where grid energy supply is a potent energy concern are facilities such as Ramstein Air Base, the Vogelweh Housing and Rhein Ordnance Barracks Army logistic center in the city of Kaiserslautern, and others in the region, collectively identified as the U.S. Kaiserslautern Military Community, the KMC. The exposure to Russian sourced natural gas in this military region raises problems in light of Russia's invasion of Ukraine.

For several years Army planning of furnished energy supply for the new Rhine Ordnance Barracks Medical Center (ROBMC) near Ramstein AB would increase use of Russian Federation sourced natural gas in the energy supply via the national gas grid, as planned by the Army. A furnished energy agreement for the U.S. facilities in the city of Kaiserslautern, originally signed in 1995, is currently being renewed. Army planners have informed the furnished energy contractor that German gas grid supply will continue; an arrangement made possible because the Army obtained a waiver under flawed legislation. Likewise, U.S. LNG could be an alternative principal energy source for these installations.

QUESTION—Have other sources of energy been considered, such as U.S. Liquefied Natural Gas (LNG), now available in abundance in Europe?

QUESTION—Can the current Army planning for the Kaiserslautern system be revised to avoid use of the gas grid, with reliance on LNG at the new medical center?

QUESTION—Can the Department of Defense establish a major energy acquisition policy for Europe installations that downgrades the reliance on Russia natural gas supply for American defense facilities?

Mr. CRAMER. [No answer was available at the time of printing.]

Mr. WILSON. BACKGROUND—The Department of Defense (DOD) is pursuing policies to increase energy resilience and to reduce the carbon emissions of installation and operational energy to reduce climate risks. However, DOD may not be fully considering all carbon-free energy technologies, nor is it fully assessing the ability of carbon-free emitting energy technologies to meet the reliability, resilience and performance requirements for installations and operations, especially for national security or mission critical activities. Consequently, DOD may be developing climate action strategies that do not maximize the achievement of both mission objectives and climate goals.

QUESTION—Is DOD evaluating the reliability, resilience and performance characteristics of all existing and emerging carbon-free energy technologies, including grid-scale and micro advanced nuclear energy;

QUESTION—How can carbon-free energy technologies meet the reliability, resilience and performance requirements for all agency energy uses, including installations and contingency operations, and especially for national security and mission critical activities?

QUESTION—Under current energy plans, will DOD be able to maximize its critical capabilities essential for strategic readiness, such as force electrification, directed energy weaponry, and multi-domain operations?

QUESTION—Describe any efforts to ensure that development of energy infrastructure in the near term can incorporate emerging technologies in the future.

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QUESTION—Is DOD evaluating the reliability, resilience and performance characteristics of all existing and emerging carbon-free energy technologies, including grid-scale and micro advanced nuclear energy;

QUESTION—How can carbon-free energy technologies meet the reliability, resilience and performance requirements for all agency energy uses, including installations and contingency operations, and especially for national security and mission critical activities?

QUESTION—Under current energy plans, will DOD be able to maximize its critical capabilities essential for strategic readiness, such as force electrification, directed energy weaponry, and multi-domain operations?

QUESTION—Describe any efforts to ensure that development of energy infrastructure in the near term can incorporate emerging technologies in the future.

Mr. OSHIBA. [No answer was available at the time of printing.]

QUESTIONS SUBMITTED BY MS. SPEIER

Ms. SPEIER. Mr. Cramer, in 2020, the Department told Congress that 9,000 children of military families were on waiting lists for child care with immediate need. Now, those waitlists have more than doubled to 19,000 children. We have a child care crisis in this nation and within the military. The FY 2022 House NDAA committee report included language directing you as the Assistant Secretary of Defense for Energy, Installations, and the Environment to report to Armed Services Committee with specific waitlists and wait times for each childcare facility and an assessment of efforts by the Department to identify solutions to improve child care availability and reduce wait time. This report was due on February 15, but we have not received it yet. When will this report be complete, and what are you doing to expand child care availability and reduce waitlists?

Mr. CRAMER. [No answer was available at the time of printing.]

Ms. SPEIER. Mr. Cramer, now that the Tenant's Bill of Rights is in effect at virtually every installation, how many times has the formal dispute resolution process been used, and of those, how many times has the family prevailed, and how many times has the privatized housing partner prevailed?

Mr. CRAMER. [No answer was available at the time of printing.]

Ms. SPEIER. Mr. Cramer, what has the Department learned from the standardized complaint system for privatized housing? Has the Department identified any notable trends or operators and projects that are particularly troubled?

Mr. CRAMER. [No answer was available at the time of printing.]

Ms. SPEIER. Mr. Farnan, in 2020, the Army announced with great fanfare its 10-year, \$10 billion plan to modernize and replace its barracks so that all are brought up to good condition. What progress has been made toward this goal, and is the barracks modernization plan on track for completion by the end of this decade?

Mr. FARNAN. [No answer was available at the time of printing.]

Ms. SPEIER. Ms. Berger, I understand that the Navy is responsible for the upkeep of the tarmac at Hickam Field because it is part of Joint Base Pearl Harbor, where the Navy is the lead service. I am told that Hickam Field's tarmac is in disrepair and has not had a modernization for many decades. Why has the Navy failed to prioritize maintenance of this critical airfield? Is it because it is primarily used by the Air Force? And what is the Navy's plan to repair Hickam Field's tarmac going forward?

Ms. BERGER. [No answer was available at the time of printing.]

Ms. SPEIER. Ms. Berger, I plan to lead a congressional delegation to San Diego this year to visit Navy and Marine Corps child care centers. In preparation for this trip, I learned that Navy child development centers in San Diego have a range of unmet deferred maintenance needs, including heating, ventilation, and air conditioning systems that need replacement and unreliable plumbing systems that must be replaced because they regularly back up, yet the Navy has not budgeted any maintenance funding, known as FSRM funding, for these needs. Why does the Navy fail to keep up its child care facilities like a responsible building owner would, and what are you doing to fix this?

Ms. BERGER. [No answer was available at the time of printing.]

QUESTIONS SUBMITTED BY MR. SCOTT

- Mr. SCOTT. What is the impact of industrial wind farms on readiness?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. What impact does the unprecedented size of U.S. offshore wind leases compared to existing wind facilities overseas have on the ability of the United States to defend the entrances to major U.S. East Coast ports? makes this type of impact also unprecedented?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. Are the ARSR-4 long range air surveillance radars, which are located along the U.S. East Coast and all U.S. borders, "very susceptible" to interference from wind turbines? Does the ARSR-4's target tracking abilities decrease as turbine number, size, and density increases?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. How does the Vineyard Wind Project enhance the national security of the United States?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. Is radar interference from offshore wind farms is an impediment to air traffic control, homeland security, national defense and weather forecasting?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the criteria used to measure whether or not industrial wind farms pose an unacceptable risk to national security?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the cost in terms of \$\$\$ and full-time equivalents of the DOD personnel and contractors tasked with measuring the carbon footprint of the Department of Defense?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. What radars have experienced a reduction in the probability of detection (PD) due to land-based wind farms? What is the impact of this reduced PD to U.S. National Security?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. Do you support legislation that would increase the cap on minor military construction? If so, what should be the new cap on minor military construction?
- Mr. CRAMER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the impact of industrial wind farms on readiness?
- Mr. FARNAN. [No answer was available at the time of printing.]
- Mr. SCOTT. Is radar interference from offshore wind farms is an impediment to air traffic control, homeland security, national defense and weather forecasting?
- Mr. FARNAN. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the cost in terms of \$\$\$ and full-time equivalents of the DOD personnel and contractors tasked with measuring the carbon footprint of the Department of Defense?
- Mr. FARNAN. [No answer was available at the time of printing.]
- Mr. SCOTT. Do you support legislation that would increase the cap on minor military construction? If so, what should be the new cap on minor military construction?
- Mr. FARNAN. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the recapitalization rate of buildings across your respective service branch? How does it compare to the same rate in private industry?
- Mr. FARNAN. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the impact of industrial wind farms on readiness?
- Ms. BERGER. [No answer was available at the time of printing.]
- Mr. SCOTT. Is radar interference from offshore wind farms is an impediment to air traffic control, homeland security, national defense and weather forecasting?
- Ms. BERGER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the cost in terms of \$\$\$ and full-time equivalents of the DOD personnel and contractors tasked with measuring the carbon footprint of the Department of Defense?
- Ms. BERGER. [No answer was available at the time of printing.]
- Mr. SCOTT. Do you support legislation that would increase the cap on minor military construction? If so, what should be the new cap on minor military construction?
- Ms. BERGER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the recapitalization rate of buildings across your respective service branch? How does it compare to the same rate in private industry?
- Ms. BERGER. [No answer was available at the time of printing.]
- Mr. SCOTT. What is the impact of industrial wind farms on readiness?
- Mr. OSHIBA. [No answer was available at the time of printing.]
- Mr. SCOTT. Is radar interference from offshore wind farms is an impediment to air traffic control, homeland security, national defense and weather forecasting?

Mr. OSHIBA. [No answer was available at the time of printing.]
 Mr. SCOTT. What is the cost in terms of \$\$\$ and full-time equivalents of the DOD personnel and contractors tasked with measuring the carbon footprint of the Department of Defense?

Mr. OSHIBA. [No answer was available at the time of printing.]
 Mr. SCOTT. Do you support legislation that would increase the cap on minor military construction? If so, what should be the new cap on minor military construction?

Mr. OSHIBA. [No answer was available at the time of printing.]
 Mr. SCOTT. What is the recapitalization rate of buildings across your respective service branch? How does it compare to the same rate in private industry?

Mr. OSHIBA. [No answer was available at the time of printing.]

QUESTIONS SUBMITTED BY MR. KAHELE

Mr. KAHELE. The Navy's undersea training ranges play an essential role in maintaining the readiness of the fleet. However, many of these underwater ranges are well beyond their design life and are losing capability. Hawaii is home to the Barking Sands Tactical Underwater Range (BARSTUR), which is located on Kauai at the Pacific Missile Range Facility (PMRF). The PMRF and its location in the Pacific makes BARSTUR a critical asset for training, readiness, verification, and testing. It also supports the annual Rim of the Pacific (RIMPAC) exercise, which has participants from all over the world including dozens of nations, hundreds of ships, aircraft, and other vehicles. The reality is that the BARSTUR range has passed design life and needs to be replaced as quickly as possible. Roughly 30% of the Barking Sands Tactical Underwater Range (BARSTUR) in-water sensors are inoperable due to the aging infrastructure, resulting in reduced tracking coverage area. This is concerning because the failure or significant performance degradation of BARSTUR will require the Navy and our allies to transit to other ranges (i.e. Pacific Northwest and San Diego) to accomplish training and testing. Hawaii-based submarines, surface ships and aircraft will need to transit long distances consuming time, energy, and other resources. Can you provide an update on BARSTUR's restoration and the role that it will play in this year's RIMPAC exercise?

Mr. CRAMER. [No answer was available at the time of printing.]

Mr. KAHELE. Mr. Cramer/Mr. Oshiba, as you may know I have the honor of flying the C-17 for the Hawaii Air National Guard. The C-17 is the backbone of our nation's strategic airlift capacity and its unique capabilities and exceptional readiness continue to be called upon around the world—most recently in support of the conflict in Ukraine and prior to that in Afghanistan. The C-17 is also the number one consumer of fuel in the USAF fleet. Our international allies who fly the C-17 have been leaning forward by leveraging digital analytical tools which have already reaped dividends in fuel savings while making substantial improvements in readiness as well as training and operational efficacy. Our international partners have already demonstrated fuel savings of more than 4.5 million pounds across a fleet of about 35 equipped aircraft—largely by eliminating unnecessary engine runs, which has the added benefit of increasing the time an engine can stay on wing. Imagine the results if these same digital tools were applied to the 222 aircraft strong U.S. fleet. What can your office do to support the adoption of these innovations across the USAF C-17 fleet and, more generally, how are you using the section 2912 authority to fund further investment in operational energy-related technologies?

Mr. CRAMER and Mr. OSHIBA. [No answer was available at the time of printing.]

