

# UNITED STATES POLICY AND POSTURE IN SUPPORT OF ARCTIC READINESS

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## HEARING

BEFORE THE

SUBCOMMITTEE ON  
READINESS AND MANAGEMENT SUPPORT

OF THE

COMMITTEE ON ARMED SERVICES  
UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

\_\_\_\_\_  
MARCH 3, 2020  
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## **UNITED STATES POLICY AND POSTURE IN SUPPORT OF ARCTIC READINESS**

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**TUESDAY, MARCH 3, 2020**

UNITED STATES SENATE,  
SUBCOMMITTEE ON READINESS  
AND MANAGEMENT SUPPORT,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

The Subcommittee met, pursuant to notice, at 2:29 p.m., in room SR-232A, Russell Senate Office Building, Senator Dan Sullivan (Chairman of the Subcommittee) presiding.

Members present: Senators Sullivan, Fischer, Ernst, Kaine, Shaheen, and King.

### **OPENING STATEMENT OF SENATOR DAN SULLIVAN**

Senator SULLIVAN. The hearing on the Subcommittee on Readiness and Management Support will come to order.

The Subcommittee meets today to hear testimony on United States policy and posture in support of Arctic readiness, which is a key topic.

We are pleased to have Under Secretary James Anderson here from the Department of Defense and the NORTHCOM [Northern Command] commander, General O'Shaughnessy.

This hearing is a long time coming. Five years ago today, to the day, I asked Secretary of Defense Ash Carter and then-Chairman of the Joint Chiefs of Staff, General Martin Dempsey, about the previous administration's 2013 DOD [Department of Defense] Arctic Strategy. Some of my colleagues will remember this so-called strategy. It was 13 pages, half of which were pictures, talked a lot about the environment, and it mentioned Russia once, in a footnote. Not very much of a DOD strategy. But, to his credit, during the hearing, Secretary Carter stated, "The Arctic is going to be an area of growing strategic importance." General Dempsey then added that, "The Russians have just taken a decision to activate six new brigades in the Arctic"—four of them were stationed there—"and to develop a new Arctic Command."

A lot has happened in the ensuing 5 years, but I actually think we've come a long way on some important issues. There is a lot at stake in America's Arctic, which is also home to my State, the great State of Alaska. From resource development and transportation routes, which are opening up due to receding sea ice, to the region's strategic location, keeping the environment protected, to the Arctic's cold-weather hardened but very warmhearted people,

my constituents, some of America's most patriotic citizens, the Arctic is growing in its global importance.

Since this day 5 years ago, and under the leadership of my friend and mentor, Senator McCain—the late Senator McCain—and now under Chairman Inhofe, Congress has mandated two updates to the original DOD Arctic Strategy. They are much more significant and serious documents. The full Armed Services Committee has included over two dozen Arctic-related provisions in the NDAA's [National Defense Authorization Acts] in the last several years, including, importantly, authorizing six polar security cutters for the Coast Guard, creating the need for a strategic Arctic port in the region, and requiring each service to detail how they're implementing the 2019 DOD Arctic Strategy.

In that same time, however, we've seen Russia's push all-in on controlling the Arctic. Russia has opened 16 deepwater ports, 14 airfields, built Arctic military bases, and even formed a new Northern Command. In fact, Vladimir Putin has referred to the Northern Sea Route as the New Suez Canal and has made major military investments to ensure this route for Russia, and his government has even threatened to sink foreign vessels that do not have a Russian pilot on board or a Russian escort. The Russians also have built, now, 54 icebreakers, many of which are weaponized, some of which are nuclear. The United States, for our part, has two, and one is broken.

Secretary of State Pompeo, in a speech before the Arctic nations in Finland, stated, "These Russian provocative actions are part of a pattern of aggressive behavior in the Arctic."

Meanwhile, China has added themselves as a wannabe player in the Arctic, as well. Currently, China has two medium icebreakers. This December, they released plans to build their first heavy-class icebreaker. In early 2018, China released its own Arctic strategy—the "Polar Silk Road," it was entitled—in which they describe themselves as a, quote, "near-Arctic state." They created this made-up designation in spite of the fact that China is 900 miles away from the Arctic Circle. As Secretary Pompeo stated in his speech in Finland, "There are only Arctic states and non-Arctic states. No third category exists. Claiming otherwise entitles China to exactly nothing. In case our Chinese Communist Party individuals who are watching, on behalf of the United States and Alaska and other Arctic nations, let me be clear on one thing. There is no such thing as a near-Arctic state." That's not going to—and I just want to repeat that again. No such thing.

Let me be clear about another thing, as well. Great power competition is outlined in our Nation's National Security and National Defense Strategy, strategies that have strong bipartisan support in the Senate. That great power competition is coming to the Arctic. Congress, in a bipartisan way, understands this. Secretary Pompeo certainly does. The media, as evidenced by headlines that I will introduce for the record, over the last year on the growing rivalry in the Arctic—and I'm going to submit this for the record, all these headlines, without objection—also is understanding this.

[The information referred to follows:]



## The West is losing the battle for the Arctic

BY PETER SCHECHTER, OPINION CONTRIBUTOR — 09/19/19 12:00 PM EDT  
THE VIEWS EXPRESSED BY CONTRIBUTORS ARE THEIR OWN AND NOT THE VIEW OF THE HILL

7/15/2019 7:00AM

### Arctic Melt Heightens U.S. Rivalry With Russia on the Northern Front

WSJ VIDEO

## DONALD TRUMP SAYS U.S. WILL BLOCK CHINA FROM EXPANDING TO THE ARCTIC: 'WE WON'T LET IT HAPPEN'

BY DAVID BRENNAN ON 10/3/19 AT 11:17 AM EDT

**Newsweek**

WORLD NEWS NOVEMBER 29, 2019 / 5:27 AM / 4 DAYS AGO

## China mixing military and science in Arctic push: Denmark

REUTERS

Climate Changed

## Melting Ice Redraws the World Map and Starts a Power Struggle

The Arctic is emerging as a potential geopolitical flashpoint for the U.S., Russia and China as shipping routes get unblocked.

By Marc Champion  
October 11, 2019 12:16 PM EDT

**Bloomberg**

## A thawing Arctic is heating up a new Cold War

NATIONAL GEOGRAPHIC

September 2019

## Is Russia Preparing For An Invasion of This Important Piece of the Arctic?

THE NATIONAL INTEREST

October 13, 2019

Defense One

### Russia, China Offer Challenges in the Arctic

BY ADM. JAMES FOGGO III  
READ BIO »

JULY 10, 2019

Naval

Congress wants the US military to challenge Russia with a new Arctic port

By: David B. Larter June 21

DefenseNews

## China Military Expanding Reach Into Arctic Region, Pentagon Says

By Anthony Capaccio  
May 2, 2019, 10:20 PM EDT

Bloomberg

Forget Greenland. A far more dangerous game is being played in the Arctic.

By John Englander

August 30, 2019 9:15 a.m. EDT

The Washington Post

LETTER FROM THE ARCTIC CIRCLE

### Norway's 'northernmost Chinatown' eyes Arctic opportunity

Melting ice and dreams of high-latitude shipping lanes have attracted attention from Beijing.

By ISABELLA BORSHOFF | 1/20/19, 6:40 PM CET | Updated 1/24/19, 5:02 AM CET

POLITICO

### Navy Moves Ships into the High North as Arctic Competition Intensifies

26 Sep 2019  
Military.com | By Oriana Pawlyk

Military.com

Senator SULLIVAN. However, the one entity in Washington, DC, that has been slow to recognize the challenges and threat in the Arctic is actually the Department of Defense. So, today we are holding this hearing focused on readiness in this important region of America and our military's readiness to respond. Simply put, we are not fully ready at all to conduct great power competition in the Arctic or other cold-weather environments, like those found in most of the countries where the National Security Strategy and National Defense Strategy recognize there is going to be near-peer competition, like Russia and China and also North Korea. We're improving, but we've got a long way to go.

I want to thank both our witnesses again—Secretary Anderson, General O'Shaughnessy—for being here today to participate in this hearing.



I especially want to thank General O'Shaughnessy for his steadfast leadership, advocacy on Arctic issues. He certainly is not one of the people in the Department that needs to be reminded of the importance of the Arctic. I also want to thank General O'Shaughnessy for his decades of exceptional service to our Nation. Your great service is going to be missed, sir, and we thank you so much for everything that you've done for our Nation.

With that, I'd like to turn it over to my friend and colleague, Senator Kaine.

#### **STATEMENT OF SENATOR TIM KAINE**

Senator KAINE. Thank you, Mr. Chair.

Welcome, to the witnesses.

I'm very glad we're having this hearing. This is the first hearing this year of the Readiness Subcommittee. We'll be busy in the next couple of months. I had the opportunity, over the last recess, to visit the shipyard in Pearl Harbor. Whether it's the Shipyard Industrial Optimization Plan, whether it's workforce training, these are the kinds of issues that we grapple with, and I'm really glad that Senator Sullivan has pulled this hearing together today, because I know many of the Committee Members—I know Senator King has done a lot of work on Arctic issues. I haven't. So, I'm looking forward to really climbing the learning curve.

When Secretary Seward helped purchase Alaska from Russia during the Lincoln administration, they called it Seward's Folly, and it wasn't too long after that that they realized what a genius move it was. I think we're realizing, every day, more reasons that it was a genius move, and certainly the melting of the Arctic and the open sea lanes is turning it into an area where—thank God we're an Arctic Nation, but it only is a genius move if we take advantage of it.

I was at Elmendorf Air Force Base in April with a CODEL [congressional delegation] on our way to Korea and North Vietnam—or Vietnam—and we had a lengthy discussion. They were really making the case for Arctic investments. I'm not going to talk about one of my pet issues today, just because it's probably not that productive, and that's the—we were getting strong advice during that visit and during a subsequent visit to INDOPACOM [Indo-Pacific Command] that, "Why doesn't the United States ratify the UN Convention on Law of the Sea?" Because our allies, both Arctic nations like Russia and those claiming to be near-Arctic—and, you're right, there's no such category—they use their ratification of the treaty to assert claims in the Arctic that we cannot assert, absent being a signator, nor can we undertake defensive posture to illegitimate claims that are asserted without being a signator. We have to get other nations to, sort of, do it. It would be better—I think we'd be more successful if we did that ourselves. But, we'll save that for another hearing.

We have paid attention to the need for icebreakers, but the posture and readiness is much more complicated, as Senator Sullivan mentioned. How are we training our forces to be able to fight and operate in the High North? How do we make sure that there are not gaps between NORTHCOM, EUCOM [European Command], and PACOM, each of which have critical responsibilities? We want

to make sure that nothing falls through the cracks there as they work together in coordination. Planning for other capabilities, improved communications, for example, that have some specific needs in the Arctic zone. Then, how are we cooperating with allies, Canada and other Nordic countries, who have been good allies in a number of ways?

So, that's what we're hoping that we will address today. I think it will be a good discussion. I look forward to it.

I thank the Chair for pulling this hearing together.

Senator SULLIVAN. Great. Thank you, Senator Kaine.

I want to, again, welcome our witnesses. You each will have 5 minutes for your opening statement. You can submit a longer statement for the record.

Secretary Anderson, we will begin with you, sir. You're recognized.

**STATEMENT OF JAMES H. ANDERSON, PERFORMING THE DUTIES OF DEPUTY UNDER SECRETARY OF DEFENSE FOR POLICY**

Dr. ANDERSON. Thank you, Chairman Sullivan, Ranking Member Kaine, distinguished Committee Members. Thank you for the opportunity to be part of a hearing on United States policy and posture in support of Arctic readiness. It is a privilege to be here, together with my colleague, and to speak on behalf of the Office of the Secretary of Defense.

The Department assesses long-term threats, risks, and challenges within the global context of the National Defense Strategy, the NDS. The NDS was released in 2018, and it is the Department's guiding document, which articulates key military-related challenges facing our Nation.

The NDS is clear that the primary challenge to the United States' security and prosperity is the reemergence of long-term strategic competition with great powers. As the Strategy makes clear, the threats posed by China and Russia are immediate, pressing, and of an order of magnitude that sets them apart from other challenges. We are seeing this competition play out in varying levels of intensity in key areas of the globe, including the Arctic.

The 2019 DOD Arctic Strategy is anchored in the priorities of the NDS and frames the Arctic in a broad geopolitical context. The Strategy recognizes that competition in the Arctic is important and it is one dimension of a broader global competition with China and Russia.

We also acknowledge that the character of competition varies between China and Russia, as they have vastly different geography, interests, and capability related to the Arctic region. Addressing competition in the Arctic requires the Department to effectively implement the NDS, as well as to take specific steps in the Arctic using a whole-of-government approach, further supplemented and reinforced by allies and partners.

The Department's end state for the Arctic is a secure and stable region, where United States national interests are safeguarded, the U.S. Homeland is defended, and nations work cooperatively to address shared challenges. This end state recognizes the distinctive and historic characteristics of the Arctic security environment. It

also reflects the deliberate decisions made by Arctic nations to generally engage constructively on shared challenges in the region.

The immediate prospect of conflict in the Arctic remains low, but the Department maintains a clear-eyed approach to our competitors' activities and their implications for U.S. interests and our military operations. In making these assessments, we begin with the fundamental difference between Russia and China: Russia is an Arctic nation, China is not. Russia and China are both increasingly active in the region, although in different ways, for different reasons, and with different implications for United States national security.

Russia's military investments in the Arctic contribute to its territorial defense, but may result in greater operational risk to forces that access the region. China seeks a role in Arctic governance, despite it not having territory claims in the region. There is the distinct risk that China may repeat predatory economic behavior in the Arctic that it has exhibited in other regions. Our focus is on achieving defense objectives, rather than seeking to duplicate the capabilities or approaches of our competitors.

The DOD Arctic Strategy establishes three defense objectives, derived from the NDS, which guide the Department's approach in addressing competition in the Arctic: defend the Homeland, compete when necessary, and ensure common domains remain free and open. Our network of allies and partners are the cornerstone of the Department's approach to the region, and a clear strategic advantage for the United States.

Six of the seven other Arctic nations are either NATO [North Atlantic Treaty Organization] allies or NATO enhanced opportunity partners. Our allies and partners share the United States' interest in maintaining a rules-based international order, including in the Arctic region.

Although the Arctic presents unique challenges to the Department, we believe we have the right strategic approach and a strong network of allies and partners to navigate this challenging and changing environment.

Thank you for the opportunity to testify. I look forward to your questions.

[The prepared statement of Dr. Anderson follows:]

PREPARED STATEMENT BY DR. JAMES H. ANDERSON

The 2019 DOD Arctic Strategy is anchored in the priorities of the National Defense Strategy (NDS), focusing on great power competition as the principal challenge to long-term United States security and prosperity. It describes the Department's desired end-state for the Arctic as "a secure and stable region where United States national interests are safeguarded, the U.S. Homeland is defended, and nations work cooperatively to address shared challenges."

Strategic competitors are seeking to take advantage of the increasing accessibility of the Arctic to expand their activities in the region. Russia and China are both increasingly active in the region, although in different ways, for different reasons, and with different implications for United States national security. Russia's military investments in the Arctic contribute to its territorial defense, but may result in greater operational risk to forces that access the region. China is seeking a role in Arctic governance, despite the fact that it does not have territory claims in the region. There is also a distinct risk that China may repeat the predatory economic behavior in the Arctic that it has exhibited in other regions to further its strategic ambitions.

DOD's focus, however, is on achieving our defense objectives, rather than seeking to duplicate the capabilities or approaches of our competitors—since doing so plays

to their strengths and fails to gain full value from our key advantages. To this end, the DOD Arctic Strategy establishes three defense objectives that guide the Department's approach to addressing strategic competition in the Arctic.

- 1) Defend the Homeland;
- 2) Compete when necessary to maintain favorable regional balances of power; and
- 3) Ensure common domains remain free and open.

Competition in the Arctic must be considered in the context of the relationship between the Arctic and key regions identified in the NDS. The Arctic is a potential avenue for expanded great power competition and aggression, since it is located between the two key NDS regions (the Indo-Pacific and Europe) and the United States Homeland. The Arctic is a region through which the United States may project power to advance favorable balances of power in these key regions. For example, the Greenland-Iceland-UK (GIUK) Gap illustrates the close relationship between the Arctic and the regional balance of power in Europe. Furthermore, competitors may be tempted to use malign or coercive activities in the Arctic in an attempt to advance their objectives in other regions.

The Department, both independently and in cooperation with allies and partners, is taking steps to enhance the Joint Force's ability to operate in the Arctic and project power through and beyond the region. For example, we are pursuing enhanced domain awareness, regular exercises and training, interoperable supporting infrastructure, and extreme cold weather resilience with allies and partners. Of special note, our cooperation with Canada through the North American Air Defense Command (NORAD), a long-standing bi-national organization, is vital for Homeland defense.

More broadly, our network of allies and partners is the cornerstone of the Department's approach to the Arctic region and represents a strategic advantage for the United States, which China and Russia do not possess. Six of the seven other Arctic nations are either NATO allies or are NATO enhanced opportunities partners. Our allies and partners are highly capable and proficient in the Arctic region's operating conditions, and they share the United States' interest in maintaining and strengthening the international rules-based order—including in the Arctic. Defense cooperation with allies and partners complements broader United States Government cooperation in other forums, such as the Arctic Council (which excludes matters related to military and security from its mandate).

The Joint Force must have the proficiency to respond to regional contingencies, both independently and in cooperation with allies and partners. This will require agile and capable forces that are able to conduct operations flexibly in the region. We recognize that this task has implications for the Joint Force's capabilities, given that operations in the harsh Arctic environment place unique demands on the Joint Force.

The Department assesses global posture needs based on strategic priorities, the Joint Force's operational capability needs, and other factors. The Department balances the mission demands of a particular region like the Arctic against other global demands, in a manner consistent with the NDS. In accordance with DOD's Arctic Strategy, and consistent with Section 1752 of the National Defense Authorization Act for Fiscal Year 2020, the Department is assessing infrastructure needs in the Arctic to support operational flexibility and power projection. The Department regularly re-evaluates its capability and infrastructure needs as conditions, opportunities, and risks related to U.S. national security evolve. The Department is reviewing potential strategic port sites in the Arctic within the broader context of NDS priorities.

Although the Arctic presents unique challenges to the Department, we believe the Department has the right strategic approach, and a strong network of allies and partners, to navigate the region in an era of strategic competition.

Senator SULLIVAN. Thank you, Secretary Anderson.  
General O'Shaughnessy.

**STATEMENT OF GENERAL TERRENCE J. O'SHAUGHNESSY,  
USAF, COMMANDER, UNITED STATES NORTHERN COMMAND  
AND NORTH AMERICAN AEROSPACE DEFENSE COMMAND**

General O'SHAUGHNESSY. Well, Chairman Sullivan and Ranking Member Kaine, and distinguished Members of the Committee, I'm truly honored to be here today as the commander of U.S. Northern Command and North American Aerospace Defense Command. I'm also pleased to testify alongside Dr. Anderson, and congratulate

him on the White House's intent to nominate him as Under Secretary of Defense for Policy.

Chairman Sullivan, thank you for allowing us to submit our written statements for the record.

Senator SULLIVAN. Without objection.

General O'SHAUGHNESSY. USNORTHCOM and NORAD are charged with executing the National Defense Strategy number-one objective: defend the Homeland. Our adversaries have watched, they've learned, they've invested to offset our strengths while exploiting our weaknesses. They've demonstrated patterns of behavior that indicate their capability, their capacity, and their intent to hold our Homeland at risk below the nuclear threshold. The changing security environment makes it clear that the Arctic is no longer a fortress wall and the Arctic Ocean is no longer a protective moat. They are now avenues of approach to the Homeland.

The increasing commercial and adversary presence in the Arctic has created an immediate need to build Arctic awareness, enhance Arctic operations, and strengthen the rules-based order in the region. To meet this challenge, we need to invest in a capable and persistent defense that can deter adversaries, protect critical infrastructure, enable power projection forward, and prevent Homeland vulnerabilities.

To deter, detect, and defeat the threats arrayed against the Homeland today, USNORTHCOM and NORAD are transforming our commands and our way of thinking. We cannot defend the Nation against 21st century threats with 20th century technology. We must be able to outpace our adversaries using a layered defense infused with our latest technology. The Strategic Homeland Integrated Ecosystem Layered Defense, or what we're calling SHIELD, is the architecture we need to defend our Homeland against adversary threats. The Arctic, particularly Alaska, has a critical role to play in SHIELD.

As such, our layered defense needs to establish awareness in all domains, from below the Arctic Ocean to the highest levels of space where we're at risk. We need a layered sensing grid with sensors in all domains which can detect and track threats from their point of origin long before approaching our sovereign territory. In other words, it requires the ability to identify and eliminate the archers before the arrows are released.

We need an adaptable architecture for joint all-domain command and control (JADC2) capable of fusing a myriad of sensors across the globe into accurate, decision-quality threat information and at the speed of relevance for effective command and control. The DOD, in coordination with the United States Air Force in the lead, is using the 2021 budget to further this capability of JADC2.

Lastly, we need the ability to deploy defeat mechanisms capable of neutralizing advanced weapon systems in order to defend our Homeland.

We have put great effort into industry coordination within these areas. However, more needs to be done to keep pace with the advancing threats to our Homeland. We need to ensure we have complete awareness of what is happening in and around the Arctic and our Nation, and have the ability to defeat all relevant threats. A successful strategic approach is enhanced by cooperation with allies

and partners. We are strengthening our Arctic alliances, stretching from Finland to the far reaches of Nome, including our indigenous partners, in order to compete when necessary to maintain favorable regional balances of power and ensure common domains remain free and open. Together, we are stronger, as highlighted by our great binational NORAD command with Canada, and we are mindful of the gravity of our mission and the trust that you have placed in us. Aligned with the Department of Defense Arctic Strategy and capturing our sense of urgency, we at USNORTHCOM and NORAD, have declared 2020 as a year of Homeland defense, and are moving forward with the implementation of a layered defense ecosystem called SHIELD, in which the Arctic plays an absolutely critical role. You and the Committee should have the great faith in the men and women at USNORTHCOM and NORAD, because, together, we have the watch.

Thank you for your support. I look forward to your questions.

[The prepared statement of General O'Shaughnessy follows:]

PREPARED STATEMENT BY GENERAL TERRENCE J. O'SHAUGHNESSY, UNITED STATES  
AIR FORCE

Chairman Sullivan, Ranking Member Kaine, and distinguished Members of the Subcommittee, I am honored to appear before you today and to serve as the Commander of U.S. Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD). I would like to begin by thanking the Subcommittee for your steadfast support of our commands' shared Homeland defense mission and for the opportunity to discuss the significant challenges associated with operating in the Arctic.

USNORTHCOM and NORAD are driven by a single unyielding priority: defending the Homeland. In the years following the Cold War, our Nation enjoyed the benefits of military dominance as well as geographic barriers that kept our Homeland beyond the reach of most conventional threats. Our power projection capabilities and technological overmatch allowed us to fight forward, focusing our energy on the conduct of operations overseas.

However, our key adversaries watched and learned, invested in capabilities to offset our strengths while exploiting our weaknesses, and have demonstrated patterns of behavior that indicate they currently have the capability, capacity, and intent to hold our Homeland at significant risk below the threshold of nuclear war. Eroding military advantage is undermining our ability to detect threats, defeat attacks, and therefore deter aggression against the Homeland. This is emboldening competitors and adversaries to challenge us at home, holding at risk our people, our critical infrastructure, and our ability to project power forward.

The threats facing the United States and Canada are real and significant. The Arctic is no longer a fortress wall, and our oceans are no longer protective moats; they are now avenues of approach for advanced conventional weapons and the platforms that carry them. Our adversaries' capability to directly attack the Homeland has leapt forward, and they are engaged in overt, concerted efforts to weaken our national technological, economic, and strategic advantage. To address this reality, our two distinct but complementary commands are taking significant, vigorous steps to ensure our Homeland defense enterprise is ready to deter, detect, and defeat threats now and well into the future.

Throughout 2019, Russia continued to expand its military infrastructure in the Arctic. Throughout the year, Russia lengthened existing runways and built new ones at multiple airfields in the High North. In September, Russia deployed a Bastion coastal defense cruise missile unit to the Chukotka Peninsula, opposite the Bering Sea from Alaska, for a first-ever training launch from that region. The missile successfully struck a sea-based target more than 200 kilometers away, according to the Russian Defense Ministry. When deployed to the Russian northeast, this system has the capability not only to control access to the Arctic through the Bering Strait, but also to strike land targets in parts of Alaska with little to no warning.

Like the Russians, China also continues to invest heavily in the Arctic, determined to exploit the region's economic and strategic potential as a self-proclaimed "near Arctic" nation. In the last few years, Chinese survey vessels have conducted

several deployments to the Bering and Chukchi Seas, providing familiarity and experience that could eventually translate to Chinese naval operations in the region.

The Arctic is the new frontline of our Homeland defense as it provides our adversaries with a direct avenue of approach to the Homeland and is representative of the changing strategic environment in our area of responsibility. More consistently navigable waters, mounting demand for natural resources, and Russia's military buildup in the region make the Arctic an immediate challenge for USNORTHCOM, NORAD, our northern allies, and our neighboring geographic combatant commands, United States European Command and United States Indo-Pacific Command.

By fielding advanced, long-range cruise missiles to include land attack missiles capable of striking the United States and Canada from Russian territory and expanding its military presence in the region, Russia has left us with no choice but to improve our Homeland defense capability and capacity. In the meantime, China has taken a number of incremental steps toward expanding its own Arctic presence. In turn, USNORTHCOM and NORAD are strengthening the four pillars of our defenses in the High North: domain awareness, communications, infrastructure improvement, and sustainable presence in our own Arctic territory.

I want to reiterate my thanks to the Subcommittee for your constant support as USNORTHCOM and NORAD have met our Homeland defense challenges in the Arctic head-on. There are no easy solutions to the challenges presented by the extreme climate, terrain, and distances inherent in Arctic operations. However, due in no small measure to your continued attention and advocacy for our commands' requirements, we have seen significant attention, expertise, and resources brought to bear on the Homeland defense mission in the Arctic from throughout the Department of Defense.

Over the last year, our commands have worked alongside the military Services and the Office of the Secretary of Defense to ensure that our warfighting requirements are met, with particular emphasis on improving joint domain awareness and communications. In order to reclaim our strategic advantage in the High North, it is critical that we improve our ability to detect and track surface vessels and aircraft in our Arctic approaches and establish more reliable secure communications for our joint force warfighters operating in the higher latitudes. This focus is now apparent in the 2019 DOD Arctic Strategy, which reflects my command priorities and makes it clear that DOD must defend the Homeland against threats emanating from our northern approaches.

As stated in the National Defense Strategy, a core Department of Defense objective is to ensure that common domains remain open and free. In pursuit of that objective, USNORTHCOM and NORAD are very proud of our work with allies and partners to improve our shared presence and interoperability in the region and update our information sharing agreements with our Arctic allies and partners. Of note in the last year, USNORTHCOM and NORAD leaders also conducted engagements with the Danish Joint Arctic Command in Greenland and joined the United Kingdom Ministry of Defense in direct staff talks. These collaborative efforts help to reaffirm our commitment to our international partners while enhancing USNORTHCOM and NORAD's defense capability.

We are leveraging the on-the-ground experience and expertise of our warfighters in USNORTHCOM's Alaska Command along with leaders, planners, and combatants from USINDOPACOM and USEUCOM as we prepare for ARCTIC EDGE 20—the Nation's premier Arctic exercise. ARCTIC EDGE 20 will take full advantage of the unsurpassed capabilities of the Joint Pacific Alaska Range Complex (JP ARC) and allow us to test our capability to fight, communicate, and win in the harsh terrain and climate of the High North. I am personally placing significant emphasis on this important exercise, as the lessons we learn from ARCTIC EDGE 20 will play an important role in validating the requirements that will allow us to deter, detect, and defeat potential adversaries along the front line of our Nation's defenses.

Our adversaries have the ability to threaten our Homeland in multiple domains and from numerous avenues of approach and our commands are especially focused on improving our ability to defend our northern approaches. We cannot deter what we cannot defeat, and we cannot defeat that which we cannot detect. In order to effectively defend the Homeland, USNORTHCOM and NORAD have developed a Homeland Defense Design (HDD) consisting of three main elements: a layered sensing grid for domain awareness, an adaptive architecture for joint all-domain command and control, and new defeat mechanisms for advanced threats. These three elements are vital to deterring and defeating advanced threats to the Homeland, and USNORTHCOM and NORAD are moving with a sense of profound urgency to bring these capabilities into the fight.

Our need to improve our domain awareness begins with developing and integrating advanced sensors capable of detecting and tracking threats no matter where

they originate. These sensors must be able to detect, track, and discriminate advanced cruise missiles, ballistic missiles, hypersonics, and small unmanned aerial systems at the full ranges from which they are employed. The sensors must also detect and track the platforms—aircraft, ships, and submarines—that carry those weapons. A robust and resilient space layer is increasingly critical to provide the earliest possible detection and fidelity of data required.

Stovepiped transmission of data from non-compatible sensors presents a significant impediment to our ability to defend against advanced threats. To overcome this issue, we need a robust architecture for JADC2 to effectively gather data from a myriad of sensors across all domains and share it seamlessly. The architecture must facilitate rapid data fusion, processing, and analytics to feed decision makers at all levels with accurate, decision-quality information at the speed of relevance. Data from any sensor should feed any defeat mechanism, and rapid data fusion and analysis should provide faster, more precise solutions to all shooters. This architecture will facilitate high-tempo decision cycles for agile, resilient, redundant, and joint command and control. By leveraging a cloud architecture, big data analytics, edge computing, artificial intelligence, and machine learning, this network should sense a threat from one node and engage it precisely and expeditiously from another across vast distances and across all domains.

Finally, we require new defeat mechanisms for advance threat systems—to include the advanced cruise missiles capable of striking the Homeland from launch boxes in the Arctic. As adversary threat systems, employment doctrine, and operational competencies become more numerous, multi-modal, and complex, our current defeat mechanisms will become increasingly challenged. Additionally, the cost ratio of adversary threat missiles to our missile defeat mechanisms is not in our favor. We must flip the cost ratio back in our favor with deep magazine, rapid fire, and low-cost defeat mechanisms.

While these capabilities will play a critical role throughout the USNORTHCOM and NORAD areas of responsibility, they will be especially vital in our northern approaches. As diminishing Arctic ice creates opportunities for increased international commercial and military presence, our adversaries will continue their efforts to exploit the vast distances and inherent complexity of operating in the High North. Our commands are working closely with tech and defense industry partners to rapidly overcome our most pressing challenges in the region.

Specifically, our commands are collaborating with large and small companies from the commercial tech sector in order to leverage emerging technologies and digital-age approaches with potential Homeland defense applications. Under this iterative approach, our commands and our commercial partners have developed a common understanding of our shared challenges and opportunities over time. In turn, we are allowing our Nation's innovators to apply their expertise and propose advanced, innovative solutions using new but proven technology that can be rapidly incorporated into the Homeland defense ecosystem in order to improve our domain awareness, JADC2 architecture, and defeat mechanisms.

We are also adapting and evolving how we work with traditional U.S. defense industry. Rather than prescribing specific materiel solutions to the challenges facing our commands, USNORTHCOM and NORAD are engaged in ongoing two-way dialogue with defense industry innovators to share our perspective on the changing strategic environment, emerging threats to the Homeland, and operational requirements. We are working with our industry partners to ensure they understand our specific challenges and needs. In turn, our partners are identifying ways to bring new and existing systems into the Homeland defense architecture and provide tailored solutions to our unique challenges.

This approach has already shown game-changing potential. Over the last several months, USNORTHCOM and NORAD have collaborated with the defense industry, commercial tech partners, and the military Services on successful field demonstrations of emerging sensor, information fusion, and satellite communications technologies. For example, the same technology that is capable of delivering high-speed internet and voice communications to remote indigenous communities for the first time has the clear potential to bridge some of the gaps in military communications in the same region. I am excited and encouraged by the results of these demonstrations, and we will continue to lead these experiments and to solicit innovative proposals from established defense industry and emerging tech partners.

There are no routine operations in the Arctic, but USNORTHCOM and NORAD are firmly committed to defending our Homeland. Thanks in no small measure to your support, the innovative spirit of our industry and interagency partners, and the deep commitment of the men and women I am proud to lead, I have no doubt that we will continue to deter and defeat the threats facing our Homeland—to include those originating in the Arctic. We have the watch.



Senator SULLIVAN. Well, thank you, to both our witnesses.

I'm going to defer my first 5 minutes of questioning to Senator King, who I know has another commitment but is also—has a strong interest in these Arctic issues, and I want to make sure he and other Members have opportunity to ask questions. But, I appreciate him being here, very much.

Senator King.

Senator KING. Thank you, Mr. Chairman. I appreciate your taking the initiative to move this issue forward, to keep it in front of us, and to call this important hearing.

General, any evidence of China and Russia cooperating in the Arctic?

General O'SHAUGHNESSY. Senator, we certainly see areas where China and Russia are cooperating at large, and we do see some areas where China and Russia are cooperating specifically in the Arctic. You look at the investment, for example, that China has made with Russia in the Arctic. We do have some concern of that, but we also have independent concern with each of the activities that we see from China—

Senator KING. But, their primary motivations seem to be separate. The Chinese are mostly economic, the Russians are defensive and military?

General O'SHAUGHNESSY. That's broadly correct Senator. The only thing I would add to that is, because of—20 percent of the Russian GDP [gross domestic product] nominally comes from the Arctic, that the Chinese investment will play a critical role there, as well.

Senator KING. By the way, I think, if we're going to take a lesson from China declaring itself a near-Arctic nation, I'm declaring Maine a near-Caribbean nation, just—

[Laughter.]

Senator KING. You know, there's—it works just as well.

I'm worried about the operational seam that we've got—we've got three of our combatant commands that come together, and I just want to be sure—

Senator SULLIVAN. We have a chart for that, if you want to explain it—

Senator KING. Yeah.

Senator SULLIVAN.—a little bit more.

Senator KING. Okay. Well, I don't want to steal your—but, it's a very serious concern. I just want to be sure that the three combatant commands are absolutely seamlessly working together so that, in time of some crisis or difficult situation, we don't have a confusion of leadership. Can you assure me on that?

General O'SHAUGHNESSY. Senator, I will do two things. First, I would acknowledge there—the seam is the lines on the map, but I will assure you that we are working closely together. One of the things that does help that, as the NORTHCOM designation as the advocate for capabilities within the Arctic gives us a lead role to try to bring these teams together. I will say constant and regular communication, especially between NORTHCOM and EUCOM, as we look at the threats residing within the Arctic and through the Arctic. We actually exercise that muscle. When I say that, I mean the transfer of forces back and forth, the seamless ability to com-

mand and control those forces, as well as just looking, not only with our allies and partners and friends, but how that we actually integrate together. I use an example: I went to the U.K. to go to the staff talks with the U.K. as part of our tie-in with EUROM forces, met with Denmark is leadership, and we also, operationally, are back and forth with our exercises, et cetera. So, I should give—

Senator KING. That's what I was going to hope, that there are exercises to clarify "what happens if" as to who's in charge and who's calling the shots.

General O'SHAUGHNESSY. Absolutely, Senator. The way we look at it is, although—there is a line on the map, of course, but that line does not actually exist there, and so, we want to make sure that our forces, as they operate, are not limited because of a line that we arbitrarily put on the map.

Senator KING. Now, you mentioned NORAD a couple of times, and mentioned Canada. The bulk of the shoreline, outside of Alaska, is Canada. Are they engaged? Are they taking this seriously? Are they having hearings like this?

General O'SHAUGHNESSY. Senator, absolutely. In fact, I think, as the Trudeau administration has regained the—post the election, regained power, one of their focus areas, in fact, is the Arctic. With the NORAD—under the NORAD construct, of course, we're fully engaged with our Canadian partners, and see a resurgence in that partnership.

Senator KING. Dr. Anderson, I met with the United States Ambassador to Denmark recently. I think it's good news we're opening a consulate in Greenland. I think that's a positive development. Of course, Thule Air Force Base is an important outpost up there.

Finally, I urge you to go to Iceland. Iceland may be the second-most strategic place in the world. It's right in the middle of—

Senator SULLIVAN. What is the most strategic place—

Senator KING. I think it's—it's one of those other States that is up in the—

Senator SULLIVAN. Okay, I'm just checking.

[Laughter.]

Senator KING. It's the one Billy Mitchell designated. Was that before or after his court-martial that he made that?

VOICE. It was before.

Senator KING. I see, okay. This has been going on for 6 years.

[Laughter.]

Senator KING. But, Iceland is a tremendously strategic spot. It's an unsinkable aircraft carrier right in the middle of the—of that—of the gap, Greenland to England. We, I think, mistakenly left it, left Keflavik, in the early part of this century. I just hope that you'll keep Iceland in mind, keep the rotational going, and perhaps think about a more permanent kind of presence there because of its strategic position, particularly with regard to Russian submarines.

Dr. ANDERSON. Oh, absolutely concur on the strategic importance of that area, both Denmark, Greenland, and Iceland, and the U.K., the—the GIUK gap, not only for subsurface submarine activity, but also for access to the European theater and defense also, obviously, of the Homeland. So, certainly concur with your assessment.

Senator KING. Thank you.

Thank you very much, gentlemen.

Again, Mr. Chairman, thank you for the courtesy. I do have to go to another Committee meeting. Thank you.

Senator SULLIVAN. Absolutely.

Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you both for being here.

I want to make sure I understood you correctly, Dr. Anderson. Did I understand you to say that the potential for conflict in the Arctic is low? Or did I misunderstand that?

Dr. ANDERSON. That is what I've said. Presently, our assessment is that the potential for conflict, near term, is low.

Senator SHAHEEN. There was an interesting piece on—I think it may have been 60 Minutes within the last couple of months, about Russia's activities in Norway and the Arctic region, and the threat that they pose to NATO. I guess I'm puzzled by that comment, given everything that the Chairman said, and given that piece and what else we have learned about Russia's activities in the Arctic, why we're comfortable that the potential for conflict is low. I don't know if you want to answer that, or General O'Shaughnessy. Which of you—maybe both of you could answer that.

Dr. ANDERSON. Well, maybe I can expand a little bit. We're certainly in a competition with the Russian Federation. There is no question about that, and that competition, you know, spans a spectrum of information and diplomacy and economics, export controls, the Russian espionage, and so forth, and so forth.

But, when I was saying the potential for conflict is low, what I'm referring to there is actual no-kidding kinetic conflict. In that sense, presently, we assess that to be low. Now, we are very mindful of Russian capabilities, Russian intent, and—over the medium term and the long term—and we are very clear-eyed about what we must do in order to deter Moscow from any thinking or any belief that they may have something to gain by military activity.

Senator SHAHEEN. Good. Well, I'm glad we're clear-eyed, because I would hope that we are not caught off guard by what Russia is doing, as we were in Georgia and as we were in Ukraine.

I want to go to what we're doing to prepare for cold-weather activities. We have the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire, which I think does very good work. They are trying to do everything possible to make sure that we can operate in cold-weather climates. But, I wonder if you could—either of you could provide an update on what the Army's doing in response to the DOD Arctic Strategy that was published in June of 2019 to take advantage of CRREL, in Hanover, and the other things we need to do to prepare.

Dr. ANDERSON. So, I can—happy to start there. I mean, the U.S. Army Corps of Engineers has a—kind of a research facility right outside of Fairbanks, where they look at a variety of scientific and engineering challenges that pertain not only to Alaska, but to the Nation as a whole. So, that would be one example.

Clearly, the Army has forces, Active Duty and Reservists, in Alaska. They train, more generally, for cold-weather environments. So, I think, you know, across the board, as with the other Services,

they take the potential challenges and the existing challenges of operating in that harsh and demanding environment very seriously.

General O'SHAUGHNESSY. Senator, what I would add to this is, what I have seen just over the last couple of years is a relative rapid rise in each of the Services' participation in preparation to actually operate in the Arctic. That includes, of course, the Army as a key force.

The examples that I would use is, as we find other areas of the world you can deploy to with your current set of equipment, with your—with the normal training that you would have, maybe, at home station, the Arctic is not like that. You have to specifically train to be in the Arctic. You have to have the right gear, just as you mentioned. You have to—and it's everything from your clothing to your facilities to even, you know, the oil you use in your machinery. If you haven't been up there actually doing it, actually training that way, you will not be prepared to operate in the Arctic. So, I'm really pleased that I see an increased activity in the Arctic training, not just within—certainly in Alaska, JPARC Range, as an example, a great training opportunity for our force—but even with our NATO partners, as well. We see more and more, for example, Army deployments to our NATO partners to be able to operate in that environment. We see the Navy sailing in areas that they haven't sailed in decades. We see the Air Force committed to continuing to operate in this. We see the Marines also preparing and participating. For example, ARCTIC EDGE, which we have just—ongoing, just starting right now, we see over 1500 personnel participating in that Arctic-focused exercise.

Senator SHAHEEN. Thank you.

Mr. Chairman, can I ask one more question?

Senator SULLIVAN. Absolutely.

Senator SHAHEEN. So, global warming is obviously having an impact on the Arctic. It's an impact not just on the sea lanes that will be open for longer periods of time because of icemelt, but also on permafrost and what that's doing to the infrastructure in the Arctic. Can you talk about what we're planning to address that and with—in terms of cost, and whether there are other—there's other potential for conflicts that may be happening because we're going to see those sea lanes open for longer periods of time, and the ability of some of our competitors to get up there and present challenges to the United States and our allies?

Dr. ANDERSON. So, I'm happy to start with that. I mean, as has been mentioned, fortunately we're—we do have a icebreaker program underway. We have six, total—three heavy, three medium—that are in the pipeline. That will help with some of the increased hazards resulting from warming trends. With respect—

Senator SHAHEEN. I'm sorry to interrupt, but how many of those are operational now?

Dr. ANDERSON. So, right now we have one heavy that is operational, the *Polar Star*. It—there's another one, *Polar Sea*, but it is tied up at port and being cannibalized to keep the *Polar Star* operational. Then we have one medium one, the *Healy*. They both date back to commissionings back in the late 1970s. But, fortunately, we have some new ones that are coming forth. So, there is

that piece of it. I would say, on the military installations and—you know, every military installation up in the High North, in Alaska, you know, they have—they are looking very closely at the permafrost, the thawing, other environmental hazards. Not related to climate change, but Alaska suffered an earthquake in the fall of 2018. So, all these sort of ecological/environmental implications are something that commanders are dealing with.

I don't know if my colleague would like to expand a little bit.

General O'SHAUGHNESSY. Sure. First, let me mention the Polar Security Cutter Program. That is incredibly important, I think, to the Department of Defense, although, obviously, it's our great Coast Guard brethren who will be doing that. But, it's also worth noting, as we look at the—those coming online, that their first ones will—first one will go to the Antarctic. Right? We have to keep that in mind with respect to the timeline that we're dealing with here, with respect to when they're actually going to be relevant to the Arctic. I think that's a key part. \$551 million this year, though, from the Department of Defense budget, supporting that program. So, I'm very pleased that that continues to go forward, but I can't emphasize enough how important it is to keep that on timeline.

To your point about some of the effects that we are seeing, whether it be from the diminishing sea ice, the permafrost—I'll use Barrow as an example, and one of my trips up there. What I see when I—when we go up there is, it's—there's a common set of challenges that we're faced with. When I go there and see—it's not only the military installations that are challenged now, it's the local population, it's indigenous people, it's the local infrastructure. To me, this is something we can work together, and we can find ways that—for example, the road going to our—one of our key radar sites there is the same road that the villages use. How do we approach this together? Because they're very real impacts. We have to ensure that we maintain our readiness, that we maintain our ability to keep those military installations operating, whilst at the same time I think we can partner with our local people and communities to see how we can get after this together.

But, to your point, it—when you get out there and see it, it is very real, the impacts that we're seeing, and we have to make sure that's part of our cross-check, going forward.

Senator SHAHEEN. Well, thank you.

Thank you for the additional time, Mr. Chairman. That raises a whole bunch of other questions, but I'm already over.

Senator SULLIVAN. Senator Kaine.

Senator KAINE. Thank you, Mr. Chair.

I just want to follow up on some of the climate questions. I was able to go with Senator Heinrich into the Arctic National Wildlife Refuge a couple of summers ago, and we were on Kaktovik, which Senator Sullivan knows well. The melting of sea ice has put polar bears ashore. Also, the sea ice served as an anti-erosion buffer to—just the erosion of tidal action; and now that sea ice has melted, erosion—moving the little airstrip. We were in Arctic Village, which is an Athabascan village at the far south part of the range, and they're talking about caribou migration is so different than what it was that the traditional hunting of the caribou nearby—it's very hard to get to the caribou in many years now.

So, I'm—I guess I want to know this. What planning assumptions do you put in as you're looking at this? You know, the National Defense Strategy, the NDS, much of it, as stated by—has to be sort of an irreversible—we're going to be in great power competition for a long time. If that's the case, we're not going to change quickly. You have to make some planning assumptions about climate, whether it's permafrost, sea ice melt, rising sea levels, warming temperatures. What assumptions are you putting into your planning documents about the effect of climate change and then how it affects the environment in which you need to operate?

Dr. ANDERSON. I think a big part of this has to do with building in resilience to military installations, new ones and refurbishing old ones.

Senator KAINE. But, what—and I get that, but, before I get to resilience, because we do resilience planning at Norfolk, too—you do resilience planning based on an assumption. You know, there's going to be a 2 percent rise in temperature in the next 30 years, or the, you know, flooding will become more common in the streets. So, you do resilience planning based upon assumptions. Is there a document that you use, as you're making plans for operations in and through the Arctic, where you are making some assumptions sort of based on most reasonable-case scenarios about climate effects?

General O'SHAUGHNESSY. Yeah, Senator, I would say that there's multiple inputs, if you will, to the planning process, all the way from NOAA [National Oceanic and Atmospheric Administration] and what they're able to provide us. What we're seeing clearly, working with the Corps of Engineers very specifically, on what we're seeing and what we can expect to see as that continues to—those effects continue to enhance—

Senator KAINE. If I wanted to get a document, read it, and see the assumptions that you're making, what is that document? Where could I get them?

General O'SHAUGHNESSY. Senator, I think it's multiple documents, and we can certainly provide those to you, multiple sources that we're using to compile together the effects that we're expecting.

Senator KAINE. I'll ask that one for the record, because I'd like to take a look at that.

[The information referred to follows:]

General O'SHAUGHNESSY. USNORTHCOM and NORAD planners work year-round to study the strategic and operational environment in the Arctic in order to understand how changes in the region could impact our missions. Our subject matter experts review a comprehensive list of references and research to include academia, government, and private sector. In addition, we are a part of the Arctic community of interest and maintain close relationships with government organizations such as the Army Corps of Engineers Cold Regions Research and Engineering Lab (CRREL), academic research institutions like the University of Alaska Fairbanks, as well as allied and partner Arctic institutes and organizations. USNORTHCOM and NORAD planners also consult with our resident liaisons from across the interagency community to maintain constant awareness of the Arctic environment and issues as we update our plans. A representative list of primary sources includes: Sources: NOAA's annual Arctic Report Card—<https://www.arctic.noaa.gov/Report-Card> The Government of Canada's Arctic Framework—<https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587> U.S. National Strategy for the Arctic Region—<https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF> Compendium of Arctic Academic Research Papers—<https://>

[www.academia.edu/Documents/in/Arctic](http://www.academia.edu/Documents/in/Arctic) Key Partners: U.S. Army Corps of Engineers Cold Regions Research and Engineering Lab University of Alaska Fairbanks “UArctic”—<https://www.uafr.edu/uarctic/> The Arctic Institute—Center for Circumpolar Security Studies—<https://www.thearcticinstitute.org/>

Senator KAINE. General O’Shaughnessy, you stated that your number one unfunded requirement is a request for \$130 million to provide, quote, “an initial Arctic communication capability.” Tell us what that capability would give to NORTHCOM that you don’t have now.

General O’SHAUGHNESSY. Thank you, Senator.

One of the things that we find—very simple things become hard, and one of those is communication, when you’re in the Arctic. If you’re above about 65 degrees north, your satellite communication starts to diminish, and above about 70 it becomes extremely limited, except for some of our more exquisite capability—for example, with submarines, et cetera.

Senator KAINE. Right.

General O’SHAUGHNESSY. When we look at this, we find that you could go about this with a—say, a DOD project to bring communication, but, what we find is, this commercial world is getting after this with the proliferation of LEO [low earth orbit]. So, we find that a partnership with the commercial world might bring us some capability sooner, significantly sooner.

As we see, for example, the work that OneWeb and Starlink are doing to proliferate LEO with satellites that will provide literally the same connectivity that you get in your home right today, broadband connectivity that would then be available in the majority of the Arctic, we see that as an amazing game-changing capability, all the way from, just, our basic communication, but also, all of our sensors right now have limited ability to connect in and are—frankly, are not that resilient. It gives us the resiliency, it gives us the ability to communicate. Think about search and rescue, think about—all the things that normally would be easy become very hard in the Arctic. Then there’s a whole aspect that’s on the civilian side, in the impact to industry, the impact to the indigenous people, of having that connectivity. So, we think, again, shared challenges, shared solutions. We think a commercial partnership would be key to this.

Senator KAINE. Well, I’m very encouraged, because I don’t think we need to build our own, sort of, exquisite capacity when there’s commercial opportunities that are better. As long as we can protect, you know, the security of information, I think that’s very positive.

I want to ask you one more question, and then I know Senator Sullivan has many, and I’ll probably come back to ask one further in a second round.

Talk to us about the—we talked about the seams between EUCOM, PACOM, and NORTHCOM—talk about the collaborative work that you do with the Coast Guard. So, within the family, the Coast Guard search-and-rescue capacity, the Coast Guard’s ice cutters—so, talk about the relationship with the Coast Guard.

General O’SHAUGHNESSY. Senator, first, I’d highlight just the great coordination, not just within the Arctic, but at large, between

the Department of Defense and Department of Homeland Security (DHS)——

Senator KAINE. Yeah.

General O'SHAUGHNESSY.—across the board. In fact, what I often tell is, I actually meet with the Secretary of the Department of Homeland Security as or more often than I meet with the Secretary of the Department of Defense. I meet with the Secretary of Defense quite often. So, it's a great partner and collaboration, really, across the board.

But, specifically to our Coast Guard partners, Karl Schultz and I—it's an example of our great program—we went to Capstone together years ago. We are close friends ever since. But, that brings a perspective of collaboration from the start. What we find is, we have—again, it's these shared challenges and shared work together. As we see the diminishing-ice opportunities that are there, whether it be because of civilian traffic or whether it be the northern sea route and some of the challenges——

Senator KAINE. Right.

General O'SHAUGHNESSY.—we think we might face with our adversaries, that partnership with the Coast Guard is the key partnership in the Arctic. I think as we continue to let the polar security cutter—it's called the "polar security cutter" for a reason, and that middle part of that's security, because it's part of our national security. Whether it's Department of Defense or Department of Homeland Security, that collaboration together is going to be incredibly important. As we go forward and finding those things that we can do together right from the very beginning, we find an incredible synergy.

Senator KAINE. Just one comment, and then to, Senator Sullivan, we had this quirky thing last year, when we had the shutdown, where, you know—you know, it did—folks in the military were getting paid, and folks in the Coast Guard weren't, even though they're all part of our defense mission. It just so happens the Coast Guard, because they report up through DHS, were often on joint exercises with Navy and other military, and they were the ones that were not getting paid, which, you know, God willing, that never happens again, because if it does, and it starts to be a recruiting challenge, like, "Well, why would I want to go to this side of the house if I'm going to be at risk, and I would be less at risk on the DOD side." So, recruiting, retention, our Coast Guard is really necessary to our defense mission, and maybe more in the Arctic than anywhere else.

Senator SULLIVAN. Right.

Senator KAINE. There's inequities in there that we have to be careful about, going forward.

General O'SHAUGHNESSY. Senator, if I might make one comment, if you'd indulge me. One example—we have many coastguardsmen on our staff.

Senator KAINE. Right.

General O'SHAUGHNESSY. They're key and critical to that. I'd make a highlight. I have, actually, one right—sitting right behind me, Ken Boda—Captain Ken Boda.

Senator KAINE. I thought I noticed——

General O'SHAUGHNESSY. Right?



Senator KAINE.—a different color uniform in——

General O'SHAUGHNESSY. Why is that important? They bring a different perspective, but an equally important perspective, as we go forward. Captain Boda was actually the XO [executive officer] on the *Polar Star*. He served on the *Polar Sea*. He was on the *Healy*. Having that on our staff to inform us as we are the advocates for the Arctic is priceless. I mean, literally priceless. That coordination that we have, and the collaboration, where Karl Schultz is sending us his very best people to serve on our staff, to make sure that we can, in fact, as we go forward, looking at this together with our Coast Guard partners.

Senator KAINE. Excellent. Thank you.

Senator SULLIVAN. Well, as the Chair of the Subcommittee in charge of the Coast Guard, I'm also very interested in these issues, as well. We're actually working on a Coast Guard bill, kind of pre-conferencing it right now with the House, that has a pay-the-Coast-Guard provision that I'm very, very adamant about, that that, what you just mentioned, Senator Kaine, won't happen again.

Let me begin with a couple followup questions.

So, it is NORAD and NORTHCOM's number-one focus on the unfunded priority list that Senator Kaine just mentioned, which is the Arctic comms. Again, that deals with Homeland defense, these avenues of approach. Just so I'm aware, General, is that part of, or different than, the SHIELD layered defense that you're talking about?

General O'SHAUGHNESSY. Senator, that's part of it. Part of the attempt that we're trying to do is, rather than buy individual systems that are stovepipe and try to solve one problem, we're really approaching this, with SHIELD, with this architecture that could come together that could give us that domain awareness ability to command and control and the defeat mechanisms across all the threats, from ballistic missiles all the way to counter-UAS [unmanned aircraft system]. That communication piece of that, so this unfunded priority we have for communications in the Arctic, would be a key part, and be—insert into our ability to work SHIELD.

Senator SULLIVAN. That, of course, protects the avenues of approach to the entire Homeland, not just an Alaskan-focused issue, correct?

General O'SHAUGHNESSY. Senator, you bring up a incredibly important point. As we do talk about the Arctic, we must remember, it's not just about the Arctic. It's about our Homeland, it's about United States of America and, on the NORAD side, United States and Canada, and protecting our sovereign territory, and having the means to operate in battlespace that is now, as we see advancing adversaries, they have the capability that—and the intent to operate there. We must have the same ability to operate if we're going to be able to defend our Nation.

Senator SULLIVAN. I want to thank you. You've done a great job, certainly in my State. I think the very important constituents of mine, the Alaska Native population, the Alaska Federation of Natives (AFN), have all honored you, I think, even with your own Native name, which is a rare and distinct honor.

But, on this Arctic comms piece, too, can you just unpack, a little bit more, the potential that has for coverage in some of the communities in my State, which, as you know, General, it's not just a

comms issue for the military, a lot of the communities in Alaska don't have nearly the Internet or telecoms coverage that the vast, vast majority of the lower 48 accept and take for granted. How can this unfunded priority also help in that regard?

General O'SHAUGHNESSY. Yeah, thank you for letting me highlight that, Senator.

I'd start—I've actually had the incredible honor to actually have four names——

Senator SULLIVAN. Wow.

General O'SHAUGHNESSY.—the indigenous——

Senator SULLIVAN. That's more than me.

General O'SHAUGHNESSY.—Alaska.

[Laughter.]

General O'SHAUGHNESSY. We've had great partnership with AFN.

Senator SULLIVAN. Great.

General O'SHAUGHNESSY. Part of that, I think, is because we really see this as finding those areas of common challenges that we can work together. We find, the more that we peel the onion back, and that the more things we actually find, that we have these common interests, and we can get after it together.

To your point about these communications that work and—we can look at this from a couple different aspects. One is, just think about each of the individual villages that are currently cut off, that could—you know, the schools, the health facilities, the first responders, if they had the ability to actually communicate.

Senator SULLIVAN. Yeah.

General O'SHAUGHNESSY. But, then, from a more selfish interest of the Department of Defense, think about if we could link all those together with search-and-rescue capability, with the ability to tie in those villages to part of our infrastructure, maybe looking at some of the work that we've done with the—on the Canadian side, with the Canadian Ranger Program, and really taking full advantage of that expertise, 10,000 years of understanding the Arctic, and how do we leverage that into our capability, capacity. So, again, I see the future. I see so many opportunities specifically to the communications package that we're looking to address. Part of it is, in the end, it's a business. It's—we're looking in—to go to the commercial. So, the more participants we can get within that, the better business case we have. So, again, we can look at it either from an altruistic standpoint, if we want to work with our partners, or we can look at it, even with our own self-interests in mind, having more people part of this process actually makes a better business case. If you're OneWeb or you're Starlink, you're much more interested if you have a bigger population. Same as the reason why we're working with industry to try to get the industry interested in this, as well, because then it's more paying subscribers, if you will, that will really allow this to take off. I think we are on the verge of being able to make this happen, and I think it'll be game-changing for the military, I think it'll be game-changing for the local populations. I think it would be game-changing for our partners, like the Coast Guard, to be able to communicate, and on and on and on. So, I really want to continue to pursue this capability.

Senator SULLIVAN. Great. Well, I think you have done—in both your—full Committee and this Committee, your testimony has done a good job of highlighting the importance of that. I certainly am going to make a press in the NDAA, and I hope my colleagues will recognize the importance of it. So, thank you for that. I think it's been very well articulated, and I'm hopeful that we can get that number-one unfunded priority for NORTHCOM actually funded by the DOD.

Mr.—Secretary Anderson, I'm going to press a little bit. I think your point on six of seven of the Arctic nations are allies—that's actually a really good point. I've been a little bit frustrated, as you probably gathered from my opening statement, with regard to the Pentagon's approach to the Arctic. I think there's areas where the Congress leads and the Pentagon follows, where the Pentagon leads, the Congress follows. I think this has, unfortunately, been the former. I think we're starting to see, with advocates like General O'Shaughnessy, a focus in the Pentagon that's needed, because this is strategic terrain that is becoming more and more important. That was what former Secretary Mattis mentioned.

One thing that I wanted to mention to you. You know, in the first serious DOD Arctic Strategy, they talked about how we need to protect our sovereign territory, our sea lanes, through Freedom of Navigation Operations (FONOPs), kind of like what we do in the South China Sea. Actually, we do FONOPs all over the world. I've asked, particularly, our Navy leadership—this is the goal, this is the stated strategy, this is what DOD says it's going to do. However, it appears to me, with the lack of icebreakers—one heavy—that—and even ice-hardened Navy shipping—that the ability to do FONOPs in this key part of the world to protect America's strategic interests is quite limited.

You know, I like to brag about the fact that I had five uncles and great uncles who served and fought in World War II. One of my great uncles was a lieutenant in the Navy, did three Murmansk runs. It was a very dangerous Navy duty during World War II. That was all Arctic operations with the U.S. Navy. I'm not sure the U.S. Navy can pull that off again right now.

What is your sense of the ability—now, granted, we're starting to build icebreakers, but we don't even have ships that can plow through ice, or ice-hardened ships. The Department of Defense has said we're going to do Freedom of Navigation Operations. Putin has said that the Arctic is the new Suez Canal that he's going to control. He has 54 icebreakers. He's got all the cards. What are we doing to push back on that situation, when our Strategy clearly states that we should have the ability to do FONOPs?

By the way, in one of the hearings that we had with the CNO [chief of naval operations] of the Navy, he said, "Well, Senator, we—we're up there a lot, the Navy is." I'm like, "Really? How? Where?" "With subs." Well, I think it's great that we've got subs up there, but a sub is not a FONOP. You can't see a sub. The whole point of a FONOP is to demonstrate presence. So, how do we address that, Mr. Secretary? Because I think we're sorely lacking in that realm, as of now, even though it is part of the Strategy.

Dr. ANDERSON. So, the—I mean, exercising Freedom of Navigation Operations is certainly something that's central to the Depart-

ment and to the Nation. We do this around the globe, in some areas certainly more than others, as your question suggests. I cannot, you know, telegraph when we're going to do FONOPs in the Arctic, but I will——

Senator SULLIVAN. Yeah, well, my question is, Can we do FONOPs in the Arctic?

Dr. ANDERSON. Yes, sir.

Senator SULLIVAN. Very different question.

Dr. ANDERSON. Understood. So, I do—depending on——

Senator SULLIVAN. What's the answer?

Dr. ANDERSON. The Arctic, as, sir, the map behind you suggests, is actually a quite large area, and I think we—the Navy does have the capability, in, sort of, ice-free areas, to do FONOPs in a very limited capacity, or more limited capacity, in those that might be congested with ice. We've already talked about, you know, the limitations there.

But, it's something that—of course, as a matter of principle, we take issue with any excessive maritime claim. We submit to Congress every year an annual report of those nations that are claiming excessively. We do quite a number of FONOPs around the world. But, I take your point, and certainly acknowledge that we do have limitations in the Arctic right now.

Senator SULLIVAN. Are we focused on trying to address those?

Dr. ANDERSON. I think the Cutter Security Program with the Coast Guard, the development of those icebreakers is certainly a large part of that.

Senator SULLIVAN. How about ice-hardened Navy ships?

Dr. ANDERSON. So, my understanding is that the Navy has looked at this, and they have assessed that, to exercise their Arctic Strategy, they do not have a requirement for ice-hardened ships.

Senator SULLIVAN. Do you think that is even remotely logical?

Dr. ANDERSON. Again, looking at the—at certain places in the Arctic, we can certainly—and we do operate both in the surface and the subsurface and above the air, to demonstrate our overflight rights and our maritime freedom of the seas. But, there are limitations.

Senator SULLIVAN. Yeah, I don't think that's logical. I think the days of the Murmansk runs, which is a proud history of the U.S. Navy that I'm proud that my family participated in, couldn't do them right now. That's—we're going to wake up one of these days and recognize that that's a severe limitation. We've been beating the drum here, but I think we've got a lot more work to do.

Senator Kaine.

Senator KAINE. A couple more items. So, I want to pick up on this "six of seven" comment, Dr. Anderson, in your testimony. I thought that was interesting. Six of the seven other Arctic nations are either NATO allies or NATO-enhanced opportunities partners. The Arctic Council excludes military and security issues from its mandate. We do other work there. But, talk a—I hadn't really thought about the fact that the Arctic nations are generally NATO allies or security partners. So, what is the current status? This question is actually for either of you, about just, you know, the mil-to-mil cooperation between us and those NATO allies and partners on Arctic issues. Are they taking it seriously? Are they making the

investments? Do we do wargaming and other exercises to the extent that we should?

Dr. ANDERSON. So, I would say absolutely yes, with the case of our NATO allies and those enhanced partners. To cite a—kind of a current example, right now Norway is leading the charge up to a major exercise that's going to run from 12 to 20 March, entitled Exercise Cold Response. There'll be some 15,000 allies and partners, including some U.S. Forces, involved in that exercise. Norway is—you know, it brings some strong capabilities to the table. They are going ahead with the F-35. We have a very strong bilateral relationship with Denmark, with our access to Greenland, as mentioned earlier, with Thule. Iceland also provides certain other contributions with some non-NATO partners, with the Finns and the Swedes. Very strong relationships there. A strong relationship between them and NATO itself. This manifests itself in a wide variety of sort of bilateral efforts and also key leader engagements.

So, I would say, in short, it's—we need them, and we exercise with them in a robust way. This provides us a distinct and clear advantage over the Russian Federation in the competition space regarding the Arctic.

Senator Kaine. I mean, that is something that we need to always remember, that we have these networks of alliances. Russia and China just—that's not the way they do things. They can purchase friendships through transactions, but they don't have the real networks of alliances that we have, and that's strong.

I am worried, though, about Russia. There's an awful lot of a northern route around Russia, and so, what are we thinking about when Putin says, "Hey, look, this is the new Suez Canal, the route from the Pacific over to the North Atlantic. You know, if you don't either have, you know, a Russian ship or you're not escorted by a Russian, we're going to cause you trouble—you're going to have to pay a big toll to us to do it?" Is that something that we just have to accept, or what are—what are the thoughts of the United States and our allies in the Arctic nations about how we would maintain open sea, you know, that is essential adjacent to the northern border of Russia?

Dr. ANDERSON. I would—I'd say, broadly, that, you know, those type of Russian claims, you know, where they demand to have escorts on ships or they insist on putting pilots on ships, I mean, that is completely unacceptable, and, you know, our State Department has the—kind of, the diplomatic lead on that to take issue in the appropriate forum. So, that is not something that we accept as the status quo.

Senator Kaine. Okay.

General O'SHAUGHNESSY. Senator, I—

Senator Kaine. General O'Shaughnessy?

General O'SHAUGHNESSY.—I would just add to that. It's—and I think it does start, as the Secretary mentioned, as, you know—look, watching Secretary Pompeo, in May at Finland, where he very clearly articulated that. I think that's where it starts. But, then we have to continue to show—because our lack of presence is a statement unto itself. Continuing to work with our allies and partners with respect to continuing to enhance our ability to operate there and actually operate there. For example, our tie-in with

Denmark is an example where their Arctic Command has partnered with us at NORTHCOM, which defies the seams mentioned earlier, with respect to COCOMs [combatant commands], but—and we're, you know, sharing information back and forth, we're doing exercises together. Those things are the start of it. But, also, we're doing roundtable—for example, the Arctic Council, of course, is not military, by design—

Senator KAINE. Right.

General O'SHAUGHNESSY.—but we're able to use, kind of, the Arctic Security Council to go and talk through those security issues, to actually have that dialogue with our allies and partners with respect to the very challenges that you mentioned, Senator.

Senator KAINE. Great. Thank you.

That's all my questions.

Senator SULLIVAN. Thank you. I'll probably go for 5 to 10 minutes.

Senator KAINE. Yeah. That's cool. Yeah. That's fine.

Senator SULLIVAN. Well, let me close out with a few more questions. This has been a very informative hearing.

You know, gentlemen, we're talking FONOPs, which is really, in essence, power projection, which is what our military is, in many ways, all about. But, as you know, power projection also relates to infrastructure and the ability to have ports and other infrastructure that can support military assets.

General O'Shaughnessy, you know the challenge in Alaska. The closest strategic port that could actually handle, say, a *Arleigh Burke*-class Navy ship or a polar-class icebreaker, is about 1,500 nautical miles from the Arctic Circle. So, that would be about the equivalent of having, you know, Fort Lauderdale cover the entire eastern seaboard up to Boston, in terms of port capability. We wouldn't accept that. But, somehow we accept that in the Arctic. So, it's the Port of Anchorage or Dutch Harbor that could handle ships that are the size that can project power. I'm not even talking an aircraft carrier. I'm talking just destroyers and icebreakers.

So, previous Secretary of the Navy Richard Spencer, former Secretary Richard Spencer, had been to Alaska twice with the Commandant of the Coast Guard. He clearly has advocated for and said we need a strategic Arctic port. This Committee, two different times, has passed legislation highlighting the need for a strategic Arctic port that can, essentially, provide a base where a Navy ship or a significant-size national security cutter or polar security cutter can pull up, resupply, refuel. We don't have any of that along the entire Arctic area of responsibility on the west coast of Alaska, and yet, as we've already discussed, Russia has probably close to a dozen or two dozen of these kind of ports. What's your assessment and your personal opinion, as the advocate for the Arctic, on the need for strategic Arctic ports, whether it would be Nome or Port Clarence, these places that you've become familiar with, or reopening—which the former Secretary of the Navy was also interested—Adak, which is a very strategic location, the gateway to the Arctic, a critical potential base with a deepwater port with regard to our Asia-Pacific interests—can I get your assessment—actually both of your—gentlemen—on the need for a strategic Arctic port, which

this Committee and the NDAA have twice said is something that is important?

Dr. ANDERSON. So, I'll start on that. As—we are working on section 1754—or 1752, which is in the NDAA provision, to look and assess for the need of strategic ports. So, that report is—we're starting on that. We're going to deliver that by June. You know, I'd certainly grant, in a matter of principle, ports are important, but I'm going to reserve judgment until I see the results of that analysis.

What's also going on is a particular study that the Army Corps of Engineers, as you know, is doing on Nome. They have a draft report, which has been issued, I think, in December. We're awaiting the final report there to see what are the options, the cost benefits of deepening that existing port so that it could accommodate larger vessels.

Senator SULLIVAN. So, Mr. Secretary, just—and then I'd like to hear from General O'Shaughnessy—your personal military judgment. Doesn't necessarily have to follow the Secretary's. But, I will say, this is kind of round two of this. This is a classic example where the Pentagon has come back to us, saying, "Aw, you don't really need anything." I mean, no kidding? I think that's fundamentally ridiculous. Of course you need some kind of port infrastructure capacity that can handle the very ships that we need to protect our sovereignty. We can't even do FONOPs in the region. We need a place to be able to—I'm not asking for a Navy base or any—I'm just saying a place to park ships. Fifteen-hundred nautical miles away from where the action is, and we find that acceptable. I certainly hope—I certainly hope the Pentagon is not going to come back, after studying this again, saying, "There's no need." I had breakfast with the Secretary of Defense today. I don't think that's his view. So, you guys might want to run that up the food chain before you come back to this Committee again and say, "Eh, infrastructure looks fine." The infrastructure is not fine. It doesn't exist, and we need it to exist.

General, what's your view on this?

General O'SHAUGHNESSY. Well, first, Senator, when I think—the infrastructure part you mentioned is not just the port, but the broader—I mean, this is a microcosm of the broader challenge with the infrastructure that we have to work in the Arctic. That said, specific to your questions on the port, I would say, one, I look forward to working on the response with our colleagues, due in June, and then the following report, 90 days thereafter. That is a great opportunity for us to really expand on this.

I will say, we have a stated requirement for fuel north of Dutch Harbor. Where that becomes important, as you mentioned, not only Anchorage, but Dutch Harbor, not—does give you some capability, but it's—

Senator SULLIVAN. Dutch Harbor is quite, quite, quite a ways from—

General O'SHAUGHNESSY. It's, what, 1,000 miles—

Senator SULLIVAN.—Bering Strait.

General O'SHAUGHNESSY.—from Barrow, as an example.

Senator SULLIVAN. Yeah.

General O'SHAUGHNESSY. Right? So, that's—and part of the—one thing we have to look at is, it's not just getting a ship to Barrow, it's its ability to continue to operate once it gets there, and not just have to turn around and go get gas.

As I mentioned, I have Ken on my staff, and he's been very helpful as we look at some of the challenges, because we do have capability now, for example, at Nome, where we're able to get gas part of the year, but we use barges, and we go back and forth, and so, that's—

Senator SULLIVAN. Again, that's not the same as the ability—

General O'SHAUGHNESSY. No, and—

Senator SULLIVAN.—to pull a ship up, that we expect in I don't know how many eastern seaboard ports along America's eastern seaboard, where you can do that with a Navy ship or a Coast Guard cutter. Right now, you can't do it anywhere in the entire U.S. Arctic. You can't pull a ship up—

General O'SHAUGHNESSY. Sure.

Senator SULLIVAN.—to resupply or get fueled without barging. So, I think we really need to look at this, gentlemen, and take it seriously.

General O'SHAUGHNESSY. The challenges you submit there are quite real. When you look at—for example, about a third of the time that the port is actually open in Nome, for example, when we're doing these barge ops, you can't do it because of the weather, and the winds over 10 knots, and the sea states, and whatnot. So, we just—we have to look at the detail—

Senator SULLIVAN. Well, you would be able to do that, obviously, if you had a port.

General O'SHAUGHNESSY. Exactly. One of the things we've done, just to preserve options as we do go forward, is, we work with the Corps of Engineers. As we do look at the Nome study—and we're not saying Nome is an answer, or if there is an answer, but when we look at that study, we ensured that they kept the 40-foot draft as part of that proposal. To your point about the 40-foot draft would allow us to work DDGs [guided missile destroyers], the polar security cutter, et cetera, as we go forward here, at least so we have the numbers, we have the understanding, so we can continue the work we're doing.

But, then, as we look at, also, the common challenges we have, this is yet another example of—we have, both from the military standpoint, certainly with the use—with a facility such as that, we look at the commercial side that would have uses such as that. So, we see this—this is a shared effort, going forward. That's the way I think we should look at—both within the Department of Defense and the broader Federal Government, and then the local government, as we make these analysis about the necessity for a port and what that would look like, I think we have to look broader than just the pure DOD military application. Sir, I thank you and Senator Murkowski for the work that you've done with the Civil Work Act and the bill that you put on—there that allows to look at those with a national security lens as we go forward.

So, I look forward to continuing to work this issue. This is an important issue. I think you've hit some of the key parts that we know we need to work on infrastructure at large, and clearly this



is part of it. I've had the great opportunity to talk to the harbormaster, for example, Joy, talk to her just to really understand the details so I can inform OSD [office of the Secretary of Defense] and advocate for what we really need, not just to be able to get there, but then to be able to operate once we're there.

Senator SULLIVAN. Well, I think that's a really insightful answer, and I do want to mention—and I think the Corps has been working well with this—just the way in which this study's being done. As you know—and you know, Mr. Secretary—it's actually being partially funded by the Corps and partially funded by the City of Nome. So, they're all-in to even help the DOD actually do the study. My view, long held, as you have on the East Coast, I think it's a series of ports that we should be looking at to protect our—America's strategic sovereign interests along western Alaska, whether it's Nome or Port Clarence or Kotzebue or even up in Barrow, that can handle these kind of ships, which, again, is something that I believe is kind of expected, accepted, just a given on the East Coast, and even most of the West Coast, but not in America's Arctic. I think we need to start working to change that.

Related to that, as we look to—the Coast Guard has announced that the first two polar security cutters will be based in Seattle, where the one that's functioning, the one that is broken, are currently homeported. Beyond that, my own view—and maybe this is more of a Coast Guard view—or Coast Guard issue, where, as I mentioned, I chair the Subcommittee in charge of the Coast Guard—but, I think it would make sense, beyond that, to have these other Coast Guard security cutters based in a place that needs them. You mentioned the Antarctica mission. To me, that's not the priority for America. The priority for America is defend our own sovereignty. Do you have any views on that, General, in terms of going forward—granted, this is a little bit further out—but to have Coast Guard assets, particularly the polar security cutters, based in the Arctic, that can respond to the needs and missions there?

General O'SHAUGHNESSY. Well, Senator, I certainly wouldn't tell the Coast Guard, you know, where to base their force, but what I would say is—

Senator SULLIVAN. But, you are the advocate for the Arctic.

General O'SHAUGHNESSY. For the Arctic. As such, and with our partnership with the Coast Guard, what I would advocate for is the presence. Right? Whether that means that they base it in Alaska or they just make the presence available in Alaska, clearly some work to be done there. But, what we have to make sure we have is that the time that it's actually available to do missions needs to be part of that calculation.

Senator SULLIVAN. Good. Thank you.

I have one final question. It relates to this previous posterboard we had, dealing with the gaps in the different COCOMs. There has been some discussion—and I think it's at fairly senior levels within the Department of Defense—that, if you look at the significant Alaska military-based forces—Alaska-based military forces—as you know, they're operationally—they're OPCON [operational control] to PACOM. Yet, right now we have, for example, the 1st Stryker Brigade that's in Iraq. As you know, we're getting two squadrons

of F-35s here, starting in a couple of months. To address this issue of seams within COCOMs, what's your sense on whether or not the specific Alaska-based forces that are in NORTHCOM, OPCON to PACOM, biggest threat from EUCOM, and critical role, given Alaska's role in missile defense, to STRATCOM [Strategic Command], what's your sense about a more service-focused orientation on operational control of these forces as a way to make them much more of a global force ready for deployment, given their strategic location and their ability to deploy in several different theaters, not just PACOM? Do you have a sense on that? I know it's a topic that's being discussed at the senior levels of the Pentagon.

General O'SHAUGHNESSY. Right. I would just say, broadly, that, as we look at this, I think we have to look at it from a new lens. Right? I think the current alignment—

Senator SULLIVAN. From what? I'm sorry.

General O'SHAUGHNESSY. A new lens. The current alignment was in a different security environment. I think, as we look at the security environment we find ourselves today, as articulated by the NDS, very clearly talks about the changing nature of our adversaries that can hold us at risk. As we look at that, our ability to respond to that, I think we have to look at the UCP at large—Unified Command Plan at large—and then the assignment of forces within there.

Senator SULLIVAN. Do you have a personal opinion on this?

General O'SHAUGHNESSY. My personal opinion, and which I've shared with the senior DOD leadership, is, I do believe that those forces that are currently within my AOR [area of responsibility], but then assigned to a different COCOM, ought to be service-retained. By that, I'm not saying we need to own them in NORTHCOM. I'm just saying we give the Secretary of Defense the flexibility by retaining them in the Services, and then they can be assigned—allocated as they need to, based on the current—

Senator SULLIVAN. Mr. Secretary, do you have a view on that? I know it's a complicated topic that does relate to the almost unique aspects of the strategic location of the Alaskan forces. They can get anywhere in the northern hemisphere in about 7 hours. But, also, the seams that I talked about with regard to the different COCOMs, and how that plays out with the ability to use them for global force protection and global force deployment.

Dr. ANDERSON. So, I would say, generally, I'm—you know, I'm aware that the UCP is reviewed every couple of years, and this is exactly the type of seam issue that is deserving of attention. I would also say, generally, that, you know, there's an emphasis within the building to make sure that we have the appropriate-size—right-size immediate-response force and contingency response force. So, in that context, I tend to align my thinking, in a—kind of a preliminary sense, with what the General just articulated, in terms of having those forces assigned to the service.

Senator SULLIVAN. Final question. I asked this today, at the broader hearing, from the Secretary of the Air Force and Chief of Staff of the Air Force on the—in the full Committee. This goes to the question we were just talking about. But, given the strategic location of Alaska, the Air Force is looking at its OCONUS [outside the continental United States] bed-down decision of the KC-46.

The Secretary of Defense has testified that if you colocated KC-46s that are at the seams—PACOM, EUCOM, NORTHCOM, STRATCOM—colocated with over 100 fifth-generation fighters, which we will be having in Alaska, here, in the next 2 years, you would have a message of extreme strategic reach to our potential adversaries on what they see in Alaska—KC-46s colocated with 100 fifth-generation fighters. Do either of you have a view on that? The other locations the Air Force is looking at are purely in the PACOM region. Again, it kind of cabins the ability for strategic reach when you put an asset like KC-46s solely in one AOR, when, as you know, your colleague, the TRANSCOM [transportation command] Commander, recently said that the KC-46 refueling capability was their most stressed asset that they have for their global force-protection capabilities. Do you have a view of that, General? Personal opinion?

General O'SHAUGHNESSY. Yeah, Senator, what I would say is—I'll leave the basing decision to the Air Force, as there's a lot that would go into that, but what I will absolutely agree with you on is the strategic value of having access to them from Alaska. As you mentioned, you tie it to that fifth-gen, it does make a powerful statement. One of the things I was really shocked at when I was in PACAF [Pacific Air Forces], that I didn't realize—as we were looking at deployments, it was actually quicker to go from Alaska to a regional right in EUCOM than it was to go, say, to the South China Sea. That really—it was kind of eye-opening to me to really understand the—you know, when you look at a traditional map a lot, and it doesn't convey the strategic value of Alaska, as articulated by Bill Mitchell in 1935, as you mentioned, first point.

Then, the second point, I think, as you mentioned, is the leveraging, not only the ability to deploy, but also the ability to train, and you look at the JPAR and the ability to operate there. One of the continuous challenges we have is the ability to get tanker support for those operations that are happening at JPARC Range. As we see, hopefully, a steady increase in our use of the JPARC Range, not only for the fifth-generation Center of Excellence, but I would start thinking about, as a Arctic Center of Excellence—

Senator SULLIVAN. Yeah.

General O'SHAUGHNESSY.—of using that there. I see the value of having that tanking capability there, as well.

Senator SULLIVAN. Great. Thank you, Mr. Secretary, do you have a view on that—Under Secretary Rood—you know, this is an Air Force decision. He was in Alaska about 2 months ago, and, I think, saw the strategic rationale of that colocation that the Secretary of Defense testified would show our adversaries extreme strategic reach. Do you have a view on that yet, sir?

Dr. ANDERSON. I would certainly concur with the Secretary of Defense and his assessment there. The Chairman also testified, in so many words, so he sent a powerful message, that, indeed, if they were colocated, that they would have that reach, and it would be powerful message.

Senator SULLIVAN. Great.

Well, gentlemen, thank you very much.

I want to thank Senator Kaine for his patience on this hearing. It's a lot of questions from me, but I think it's very informative.

For both of you, really appreciate all the work.

If Members have additional questions in the next 2 weeks, they will submit them for the record. If you can, respectfully, answer those as quickly as you can, that would be much appreciated.

Otherwise, very informative. Again, General O'Shaughnessy, I can't thank you enough for your great service to our Nation, my State, the people of Alaska, but the people of America, and, of course, the people—men and women of the Air Force.

This hearing is adjourned.

[Whereupon, at 3:46 p.m., the Subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

##### ARCTIC NAVAL ACCESS

1. Senator INHOFE. Secretary Anderson, please provide a list of Arctic region ports in Canada, the Kingdom of Denmark, Finland, Iceland, Norway, and Sweden.

Dr. ANDERSON. Arctic region ports in the requested countries include:

- Canada: Churchill, Iqaluit, and Nanisivik.
- Kingdom of Denmark: Runivik, Faroe Islands; Nuuk, Greenland; Copenhagen; Aarhus; Frederikshavn; Esbjerg; Korsor; Fredericia; and Svendborg
- Finland: Helsinki and Turku
- Iceland: Reykjavik
- Norway: Olavsovern, Tromso, Kristiansand, Ramsund, Oslo, Market, Bodo, Stavanger, Haakonsovern, Narvik, and Harstad
- Sweden: Stockholm, Visby, Gothenburg, Stromstad, Uddevalla, Lysekil, Varberg, Malmo, Ystad, and Helsingborg

2. Senator INHOFE. Secretary Anderson, to which of these ports does the U.S. Navy currently have access?

Dr. ANDERSON. The U.S. Navy has access to all the ports listed above [response to question #1] through requests to our Arctic Council partner nation governments and/or naval counterparts.

3. Senator INHOFE. Secretary Anderson, which of these ports would be able to supply fuel to the U.S. Navy if an agreement was struck between the United States and the host government?

Dr. ANDERSON.

Canada: Nanisivik and Iqaluit would be the two primary candidates for refueling.

- Nanisivik is not yet at full operational capability (FOC); the Royal Canadian Navy (RCN) will be sending an Arctic offshore patrol ship to this location this summer to attain FOC.
- There are also a small number of other ports used by the mining industry, such as the one at Milne Inlet. The U.S. Navy could gain access to these ports through a request with the RCN (for Nanisivik) or the Government of Canada.
- However, Nanisivik does not currently have tugs boats available, which would complicate access.

Denmark: No host nation fuel exchange agreements (FEA). All fuel orders are placed via DLA Energy's Ships' bunkers Easy Acquisition (SEA) Card program (SEA Card). Arctic-region visits include:

- Runivik—Faeroe Islands (a DDG was in port in October 2019, and similar operations could be mounted with a 10–14 day lead time to the Country Team for coordination)
- Nuuk—Greenland (recent DDG port visit, and similar operations are possible with significant lead time to ensure tugs, fenders, and associated fueling requirement are available)
- Copenhagen (fueling not an issue, recent DDG port visits)
- Aarhus (no ships have been here in recent years)
- Frederikshavn (naval base, no recent port visit)
- Esbjerg (no recent port visit)

- Korsor (naval base, no recent port visit)
- Fredericia (no recent port visit)
- Svendborg (recent DDG port visits)

Finland: Fuel is available via acquisition cross-servicing agreements (ACSA) order for marine naval fuel (F76) through DLA Energy International Agreements. Fuel purchases may also be made via the SEA Card.

- Helsinki (recent DDG port visit)
- Turku (no recent port visit)

Iceland: No host nation fuel exchange agreements. Fuel is available through DLA Energy Contract with orders through the SEA Card or through the use of a competitive Open Market “spot buy” process.”

- Reykjavik (multiple port calls within in the last year)

Norway: Fuel is available via ACSA order for F76 & F44 through DLA–E International Agreements.

- Olavssvern (no recent port visit)
- Tromso (Fuel also available via DLA Energy Contract, recent DDG port visit)
- Kristiansand (Fuel also available via the SEA Card, no recent port visit)
- Ramsund (Fuel also available via the SEA Card, no recent port visit)
- Oslo (Fuel also available via the SEA Card, recent DDG port visit)
- Bergen (Fuel also available via the SEA Card, no recent port visit)
- Bodo (Fuel also available via the SEA Card, recent DDG port visit)
- Trondheim (Fuel available via DLA Energy Contract, recent LHD [landing helicopter dark] and LCC [amphibious command ship] port visit)
- Stavanger (Fuel also available via the SEA Card, no recent port visit)
- Haakonsvern (Fuel also available via the SEA Card, recent DDG port visit)
- Narvik (Fuel also available via the SEA Card, recent DDG port visit)
- Harstad (Fuel also available via the SEA Card, recent DDG port visit)

Sweden: Fuel is available via ACSA Order for F76 & Aviation Grade fuel (F44) through DLA Energy International Agreements. Fuel purchases may also be made via the SEA Card, except in Visby.

- Stockholm (recent DDG port visit)
- Visby (we have access, but the SEA Card option is not available and we can only leverage the ACSA, no recent port visit)
- Gothenburg (no recent port visit)
- Stromstad (no recent port visit)
- Uddevalla (no recent port visit)
- Lysekil (no recent port visit)
- Varberg (no recent port visit)
- Malmo (no recent port visit)
- Ystad (no recent port visit)
- Helsingborg (no recent port visit)

\*Note for the ACSA/FEA locations.

- ACSA orders require 14 days advance notice. The fuel is owned by the country in question and support is not guaranteed.
- Locations supported are primarily host nation military ports, but support may be provided elsewhere (DLA Energy International Agreements would need to ask the host nation)
- The U.S. DOD customers will request fuel at a specified location from the Ministry of Defense (MOD) or the Military (MIL). The requests are usually relayed at the tactical level.
- The MOD/MIL will provide a response if it can provide the support.
- If it can provide the support, U.S. DOD customers will lift fuel, verify/populate the information on fuel sales slips, and then sign the sales slips.

\*Note for the SEA Card Locations.

- The SEA Card program is administered by/through DLA Energy and either uses current bunker contracts with civilian companies or creates a one-time contract with civilian companies through a competitive quote Open Market “spot-buy” process.
- SEA Card locations do not guarantee fuel. There is always the possibility that no vendor bids on the request or that the fuel specifications the vendor submits are not acceptable.

4. Senator INHOFE. Secretary Anderson, which of these ports currently has the capacity to host an *Arleigh Burke*-class destroyer of the Navy?

Dr. ANDERSON. The following ports have the capacity to host a Navy *Arleigh Burke*-class destroyer:

- Canada: Nanisivik and Iqaluit. Note, use of Nanisivik is currently limited by a lack of tugs.
- Kingdom of Denmark: Runivik (Faroe Islands), Nuuk (Greenland), Copenhagen, and Svendborg
- Finland: Helsinki and Turku
- Iceland: Reykjavik
- Norway: Olavssvern, Tromsø, Ramsund, Oslo, Market, Bodo, Haakonssvern, Narvik, and Harstad
- Sweden: Stockholm, Visby, Gothenburg, Stromstad, Uddevalla, Lysekil, Varberg, Malmo, Ystad, and Helsingborg

5. Senator INHOFE. Secretary Anderson, for how many months out of the year is Nome open?

Dr. ANDERSON. The Port of Nome is typically open for approximately 5 months each year, normally from May through September; however, this is dependent upon weather and ice conditions.

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#### QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

##### ARCTIC READINESS

6. Senator SULLIVAN. General O'Shaughnessy, during the hearing we both agreed on our concern for the severe lack of infrastructure the U.S. military has in the Arctic and what effect that has on the readiness of our forces and U.S. Northern Command's (NORTHCOM) ability to defend the Homeland. That lack of infrastructure extends in to the civilian presence in Alaska, which adds additional strain on military capabilities. In your personal opinion, can you expand on what infrastructure improvements are required in the Arctic to ensure we are ready to operate in the region?

General O'SHAUGHNESSY. Improving our infrastructure in the Arctic will have significant benefits for USNORTHCOM's homeland defense mission in the northern approaches. For example, a deep-draft Arctic Port could help extend maritime operational reach and endurance for surface combatants operating in the Bering and Chukchi Seas. NORAD and USNORTHCOM are also working with partners and industry on improvements at the Joint Pacific Alaska Range Complex (JPARC). During the fiscal year 2021 budget cycle, USNORTHCOM successfully advocated for funding of simulators and weapons testing at JPARC to ensure personnel from across the joint force are able to train in tough Arctic conditions. Eielson AFB Patriot site improvements completed in fiscal year 2019 will enable the deployment of a Patriot Minimum Engagement Package, while the ongoing Cold Rapid Airfield Damage Repair test is moving forward with a goal of enabling sustained cold-weather aviation operations at northern airfields. Finally, I would stress that our Homeland defense mission in the High North requires an adaptable architecture for joint all-domain command and control, improved domain awareness, and defeat mechanisms to counter advanced adversary weapons.

7. Senator SULLIVAN. General O'Shaughnessy, in your personal opinion, what infrastructure and capabilities would be required of the U.S. military if they are required to not just operate, but fight and win against a near peer adversary in the Arctic region?

General O'SHAUGHNESSY. U.S. Northern Command's Strategic Homeland Integrated Ecosystem Layered Defense (SHIELD) initiative, which will include a modern sensor network for domain awareness, Joint All-Domain Command and Control (JADC2), and defeat mechanisms that can neutralize our adversaries' advanced weapons systems, will provide the capability to deter, detect, and defeat threats against our Homeland. In addition to the infrastructure priorities described in my response to question #6, we must continue to invest in capabilities suitable for Arctic operations. Those requirements, including the U.S. Coast Guard's Polar Security Cutter program, will provide us a persistent surface presence needed to protect our national interests in the Arctic and deter our adversaries' military expansionism.

8. Senator SULLIVAN. General O'Shaughnessy, as we discussed in the hearing the closest Department of Defense Strategic Port is located 1,500 miles from the Arctic Circle in Anchorage, Alaska. What is your personal opinion on the need for a Strategic Arctic Port where the Navy and Coast Guard would be able to refuel and re-supply while operating in the Arctic region?

General O'SHAUGHNESSY. USNORTHCOM has a requirement to provide fuel to surface combatants north of Dutch Harbor. We have worked with the U.S. Army Corps of Engineers throughout the drafting of their Port of Nome feasibility study, and in May 2019, I wrote to the Assistant Secretary of the Army for Civil Works to articulate the national security benefits associated with establishing a 40-foot deep draft port at Nome. A 40-foot controlled depth would allow access by surface combatants, including U.S. Navy destroyers and U.S. Coast Guard Polar Security Cutters. A commercial port facility capable of servicing these military vessels would play a key role in meeting current and future operational requirements in the Arctic.

9. Senator SULLIVAN. General O'Shaughnessy, during the hearing you briefly highlighted the strategic value of basing 5th generation tankers such as the KC-46 with the 100 combat coded 5th generation fighters the U.S. Air Force will have based in Alaska. In your personal opinion, can you expand on the strategic global force projection that would give our Air Force and what strategic dilemmas that would pose to our adversaries?

General O'SHAUGHNESSY. Air assets based in Alaska can be mobilized rapidly to deploy to either the Eurasian Arctic or to the Indo-Pacific region for response to aggression from either of our near-peer adversaries. The ability to position aircraft in Alaska that are readily postured for NORAD operations and potential overseas contingencies provides a strong deterrent, defends the continent, and protects our national interests around the globe.

10. Senator SULLIVAN. General O'Shaughnessy, NORTHCOM's top unfunded priority is the deployment initial Arctic communication capability, and you have cited this as a necessity due to the severe lack of communication capacity in the Arctic. In your personal opinion, how does this lack of communication capability affect military operations in the Arctic?

General O'SHAUGHNESSY. The ability to communicate underpins every successful military operation. Our assets in the Arctic face significant communications challenges as a result of the harsh climate, adverse weather conditions, and a lack of communications architecture in the High North. To address this critical issue, we are partnering with the Services, defense agencies, and industry to explore the potential for a proliferated low earth orbit satellite constellation to provide voice and data communications throughout the Arctic region.

11. Senator SULLIVAN. General O'Shaughnessy, in the hearing you stated that the deployment of Arctic communications infrastructure will be game-changing for the military and will also make a significant impact on local populations, such as those in Alaska. Can you expand on the potential benefit that local populations could receive from the deployment of this capability?

General O'SHAUGHNESSY. Commercial low earth orbit (LEO) satellite communication has strong potential to support military operations in high latitudes. In addition, this commercial capability, once in place, can be leveraged by isolated Arctic communities for high-speed internet and voice communications. USNORTHCOM and NORAD are working closely with industry partners to evaluate ways in which commercial LEO could help to resolve the significant technical challenges that have historically hindered reliable communications for military and civilian users in the High North.

12. Senator SULLIVAN. General O'Shaughnessy, the United States Navy regularly performs sub-surface operations in the Arctic, but lacks the capability to operate on the surface or support the U.S. Coast Guard in the Arctic. In your personal opinion, if the U.S. Navy had surface capabilities in all weather and ice conditions year round in the Arctic what strategic advantage would that provide? What message are we sending to our adversaries by not having this capability?

General O'SHAUGHNESSY. Deterrence is a critical element of Homeland defense and we must ensure our adversaries know we have the capability, capacity, and will to defend the Homeland in the maritime domain. This visible presence will include U.S. Coast Guard Polar Security Cutters and U.S. Navy surface combatants. We are working closely with the U.S. Navy to ensure USNORTHCOM's operational requirements in the High North are met. I strongly support the Navy's requirement for ice-capable future surface combatants.

## QUESTIONS SUBMITTED BY SENATOR DOUG JONES

## CHINA'S INTENTIONS IN THE ARCTIC

13. Senator JONES. General O'Shaughnessy, what do you assess as China's near and long term military goals for the Arctic region?

General O'SHAUGHNESSY. We assess China's near-term military goal for the Arctic region is to develop baseline knowledge and establish familiarity with the operating environment. In its 2018 Arctic White Paper, China stated its policy goals are "to understand, protect, develop and participate in the governance of the Arctic, so as to safeguard the common interests of all countries and the international community in the Arctic, and promote sustainable development of the Arctic." We also assess that China desires to be acknowledged globally as an Arctic-relevant country in a manner that will limit concern among established Arctic nations. Over the longer term, China recognizes the military-strategic importance of the polar regions and seeks sufficient military capability and capacity to secure its access to the natural resources and emerging shipping routes of the region. China calls itself a "near-Arctic" state, and in the same 2018 Arctic White Paper, China asserts: "States from outside the Arctic region do not have territorial sovereignty in the Arctic, but they do have rights in respect of scientific research, navigation, overflight, fishing, laying of submarine cables and pipelines in the high seas and other relevant sea areas in the Arctic Ocean, and rights to resource exploration and exploitation in the Area, pursuant to treaties such as UNCLOS [United Nations Convention on the Law of the Sea] and general international law."

14. Senator JONES. General O'Shaughnessy, how does the President's Fiscal Year 2021 budget request address those specific threats?

General O'SHAUGHNESSY. The President's Fiscal Year 2021 Budget supports necessary investments in homeland defense that allow USNORTHCOM and NORAD to address a wide range of threats, to include those related to China's activities in the Arctic. Investments in domain awareness, joint all-domain command and control, and advanced defeat mechanisms, as well as in DOD science and technology programs, will improve our ability to detect, deter, and if necessary, defeat current and future threats. USNORTHCOM and NORAD rely on these integrated, multi-domain capabilities and essential investments in modernization, lethality, and innovation to meet current and future homeland defense challenges in the Arctic.

