

Department of Defense

Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region



OUSD (Policy)

December 2016

The estimated cost of this report or study for the Department of Defense is approximately \$119,000 in Fiscal Years 2016 - 2017. This includes \$50 in expenses and \$119,000 in DoD labor.

Generated on 2016Oct20

RefID: A-CE2489B

EXECUTIVE SUMMARY

The Department of Defense (DoD) remains committed to working collaboratively with allies and partners to promote a balanced approach to improving security in the Arctic region.¹ DoD's strategy in the Arctic builds upon the 2009 National Security Presidential Directive 66/ Homeland Security Presidential Directive 25, *Arctic Region Policy*, and the 2013 *National Strategy for the Arctic Region* (NSAR).

DoD's 2013 *Arctic Strategy* nested under those two overarching national-level guidance documents. DoD's 2016 *Arctic Strategy* updates DoD's 2013 *Arctic Strategy* as required by Section 1068 of the National Defense Authorization Act for FY 2016 (P.L. 114-92) in light of significant changes in the international security environment. It refines DoD's desired end-state for the Arctic: **a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is defended, and nations work cooperatively to address challenges.** The two main supporting objectives remain unchanged: 1) Ensure security, support safety, promote defense cooperation; and 2) prepare to respond to a wide range of challenges and contingencies—operating in conjunction with like-minded nations when possible and independently if necessary—in order to maintain stability in the region. This update also adds a classified annex.

In this strategy, near-term refers to the timeframe from the present to 2023, during which DoD will operate with current forces and execute resources programmed across the Future Years Defense Program (FYDP). The mid-term (2023-2030) and far-term (beyond 2030) are also addressed where relevant to global posture and force development. Timeframes are approximate due to uncertainty about future environmental, economic, and geopolitical conditions and the pace at which human activity in the Arctic region will increase.

The 2016 *Arctic Strategy* also updates the ways and means DoD intends to use to achieve its objectives as it implements the NSAR. These include:

- Enhance the capability of U.S. forces to defend the homeland and exercise sovereignty;
- Strengthen deterrence at home and abroad;
- Strengthen alliances and partnerships;
- Preserve freedom of the seas in the Arctic;
- Engage public, private, and international partners to improve domain awareness in the Arctic;
- Evolve DoD Arctic infrastructure and capabilities consistent with changing conditions and needs;
- Provide support to civil authorities, as directed;
- Partner with other departments, agencies, and nations to support human and environmental security; and
- Support international institutions that promote regional cooperation and the rule of law.

¹ This DoD strategy uses a definition of Arctic, codified at 15 U.S.C. § 4111, that means all U.S. and foreign territory north of the Arctic Circle and all U.S. territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian islands chain.

DoD's strategic approach is guided by its main objectives of ensuring security, supporting safety, and promoting defense cooperation as it prepares to respond to a wide range of challenges and contingencies in the Arctic in the years to come. Alliances and strategic partnerships remain the center of gravity in achieving DoD's desired end-state and ensuring that the Arctic remains a secure and stable region. Wherever possible, DoD will continue to seek innovative, cost-effective, small-footprint ways to achieve its objectives. DoD will also continue to apply the four overarching principles articulated in the NSAR: working with allies and partners to safeguard peace and stability; making decisions using the best available scientific information; pursuing innovative partnerships to develop needed capabilities and capacity over time; and following established Federal and DoD tribal consultation policy as applicable.

I. U.S. MILITARY OBJECTIVES IN THE ARCTIC IN SUPPORT OF NATIONAL INTERESTS

According to the NSAR, security encompasses a broad spectrum of activities, ranging from economic activities, like resource extraction, fishing, and trade, to scientific research and national defense. The NSAR states that the United States is an Arctic nation² and seeks to maintain the Arctic region as stable and free of conflict, where nations act responsibly in a spirit of trust and cooperation, and where economic and energy resources are developed in a sustainable manner that respects the environment and advantageously positions the United States for economic growth. It also affirms the national security interests identified in established the *Arctic Region Policy*.

U.S. military objectives in the Arctic therefore support the broader national security interests articulated in the NSAR and the *Arctic Region Policy*.³ It is in the national security interest of the United States for DoD to strengthen partnerships with Arctic allies and partners. It is also in DoD's interest to shape military activity in the Arctic region to avoid conflict while improving its capability to operate safely and sustain forces in a harsh, remote environment in anticipation of increasing accessibility and activity in the Arctic in the coming years. A cooperative multilateral environment will also help to manage resource demands on the military as DoD strategically balances Arctic priorities with security challenges in other regions. Similarly, preserving the rights and freedoms relating to navigation and overflight in the Arctic region supports the United States' ability to exercise these rights and freedoms throughout the world.

It is DoD's intent to anticipate the need to respond to emerging challenges in the Arctic and to position itself to take advantage of opportunities to advance U.S. national security objectives. In doing so, DoD will take into account numerous factors, including differences in geography, weather, operating environment, and infrastructure between the European Arctic and the North American Arctic. The climate in the European Arctic is relatively milder due to the influence of the Gulf Stream; therefore, the European Arctic is more densely inhabited and has a more robust network of ports, roads, and other infrastructure in comparison to the North American Arctic.

² The eight Arctic nations include the United States, Canada, the Kingdom of Denmark, Finland, Iceland, the Kingdoms of Norway and Sweden, and Russia.

³ The *Arctic Region Policy* states: "U.S. national security interests include such matters as missile defense and early warning; deployment of sea and air systems for strategic sealift, strategic deterrence, maritime presence, and maritime security operations; and ensuring freedom of navigation and overflight."

U.S. forces, forces from other Arctic nations, and from non-Arctic allied and partner nations frequently operate in the region and conduct training and exercises there. An increasing number of nations—both Arctic and non-Arctic—are engaged in research, shipping, resource exploration and extraction, cruise line operations, fishing, and other commercial activities in Arctic waters. For these reasons, it is in DoD’s interest to exercise and operate in the high latitudes with our Arctic allies and partners to develop and sustain operational proficiency in all domains in the Arctic region as DoD does in other regions of the world.

II. DESCRIPTION OF OPERATIONAL PLANS AND MILITARY REQUIREMENTS

Taking these military interests into consideration, the 2016 *Strategy* articulates how DoD will achieve the ends of a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is defended, and nations work cooperatively to address challenges. DoD’s objectives in support of this end state are to ensure security, support safety, and promote defense cooperation, and prepare to respond to a wide range of challenges and contingencies—operating in conjunction with like-minded nations when possible and independently if necessary—to maintain regional stability. Sections II and III describe how DoD identifies its requirements. Section V lays out in more detail the ways and means by which DoD will execute its strategy.

Combatant commanders are responsible for preparing for contingencies and developing a range of military response options for the President and Secretary of Defense. Combatant commanders focus their planning efforts by concentrating on the employment of existing forces to address designated contingencies over the next several years; combatant commanders also retain the discretion to direct additional planning for their commands. The unique operational requirements of the Arctic environment inform these planning efforts.

DoD’s approach to developing military requirements is an important aspect of the way in which it prepares to execute its responsibilities. Although the process by which DoD determines what capabilities are needed to fulfill its mission shares some common features with the planning process, it is a separate and distinct process. DoD’s requirements process, currently known as the Joint Capabilities Integration and Development System (JCIDS), is one of the primary decision support processes for developing military forces to support the National Defense Strategy. JCIDS is a needs-driven process that identifies, assesses, validates, and prioritizes joint military capability requirements while considering the full range of materiel and non-materiel solutions.

The Commander of U.S. Northern Command (CDRUSNORTHCOM) is responsible for advocating for the capabilities required to operate in the Arctic environment. The CDRUSNORTHCOM has established an Arctic Capability Advocacy Working Group (ACAWG), composed of stakeholders from across DoD, to examine identified gaps and develop advocacy approaches to meet requirements over time. In conclusion, DoD’s operational planning and military requirements processes are closely linked to ensure DoD effectively prioritizes limited resources.

III. OPERATIONAL SEAMS AND UNITY OF EFFORT

DoD plans and executes military activities to address threats posed by state and non-State actors alike. The unique operational requirements of the Arctic inform these plans. The Unified Command Plan (UCP) identifies geographic Areas of Responsibility (AORs) that provide a basis for combatant commanders to coordinate and synchronize activities. Two geographic combatant commands share primary responsibility for military operations in the Arctic: USNORTHCOM and U.S. European Command (USEUCOM).⁴ Six of the eight Arctic nations are in the USEUCOM AOR. USNORTHCOM has geographic combatant command responsibility for Alaska and a subordinate unified command, Alaskan Command, which focuses on planning and execution of USNORTHCOM missions in Alaska and the USNORTHCOM portion of the Arctic. USNORTHCOM works in close partnership with Canada, itself an Arctic nation and NATO Ally. The Forces for Unified Command document assigns most Federal forces based in Alaska to U.S. Pacific Command (unless placed under USNORTHCOM). Functional combatant commands such as U.S. Transportation Command and U.S. Strategic Command also have interests in the Arctic due to their UCP responsibilities.

Geographic combatant commands focus on the strategic environment in their respective AORs, including potential adversaries that might operate in those AORs. Where geographic combatant commands share interest in an area such as the Arctic that transcends the UCP-designated geographic boundaries, the commands share information and coordinate their activities through established processes and procedures. Within the Office of the Secretary of Defense, the Office of the Under Secretary of Defense for Policy also plays a key role in ensuring unity of effort in cooperation with the Joint Staff.

Combatant commanders are responsible for planning in close collaboration with other combatant commands, a process that helps address potential operational seams. Furthermore, geographic combatant commanders are not restricted in accomplishing their assigned missions by the geographic boundaries of their AOR. When significant operations overlap boundaries, a task force and a joint operating area may be formed to facilitate coordination.

The bilateral United States-Canada defense relationship also enhances unity of effort. The North American Aerospace Defense Command (NORAD) is a bi-national command responsible for aerospace warning, aerospace control, and maritime warning for North America, including in the northern approaches to the continental United States. The two commands, NORAD and USNORTHCOM, while maintaining separate lines of command authority, have merged most of the staff directorates and operate with a high level of coordination. DoD will continue to build on this key relationship to promote innovative defense solutions, enhance domain awareness, and build partnerships to address the challenges presented by increasing human activity in the Arctic region.

The senior permanently stationed U.S. military officer in Europe has two roles, one as the Commander of USEUCOM (CDRUSEUCOM) and the other as the NATO Supreme Allied Commander in Europe. Through these roles, CDRUSEUCOM further enhances unity of effort among the United States and its allies and partners. USEUCOM interacts regularly with NATO

⁴ The U.S. Pacific Command (USPACOM) AOR includes a small portion of the Bering Sea.

Allies and Enhanced Opportunity Partners (EOPs)⁵ Sweden and Finland to promote a cooperative approach to defense, security, and safety in the Arctic region. Bilateral and multilateral training and exercises enhance interoperability through the development and practice of common tactics, techniques, and procedures (TTPs) for extreme cold weather operations both in the Arctic region and near-Arctic areas such as the southern approaches to the Greenland-Iceland-UK (GIUK) gap. USNORTHCOM conducts similar training in Alaska and elsewhere in its AOR.

In conclusion, unity of effort in the Arctic is achieved through DoD's planning processes, through the inherent flexibility of military command and control relationships, and through bilateral and multilateral defense relationships that facilitate planning and readiness. DoD routinely exercises these command arrangements through a range of activities, including: bilateral and multilateral military training and exercises; personnel exchanges and liaison relationships; exchanges of lessons learned and best practices in collaborative forums such as the Arctic Security Forces Roundtable (ASFR), ARCTIC EAGLE, and ARCTIC ZEPHYR series of tabletop exercises; information-sharing to enhance domain awareness; and coordination of military and civilian responses to natural or man-made disasters. Within DoD, the Military Departments and Services will promote unity of effort over the mid- to far-term by working collaboratively to build readiness and to develop required capabilities.

IV. THE ARCTIC REGION SECURITY ENVIRONMENT

The Arctic generally remains an area of cooperation, ranging from scientific, environmental, and economic collaboration under the auspices of the Arctic Council to military and coast guard cooperation to enhance maritime domain awareness and improve search and rescue (SAR) capabilities, exercise sovereignty, conduct bilateral and multilateral training and exercises, and develop Arctic transportation.

Friction points, however, do exist. The most significant disagreements from the United States' perspective are the way that Canada and Russia regulate navigation in Arctic waters claimed under their jurisdiction. Canada claims all waters within the Canadian Arctic islands as historic internal waters, requiring Canada's permission to transit, including the waters of the Northwest Passage (NWP), which the United States views as an international strait. Canada also claims authority, through regulations referred to as "NORDREGs," to deny entry to the territorial sea and exclusive economic zone (EEZ) beyond the outer Canadian Arctic islands of ships that do not report in advance to the Canadian Coast Guard. Russia makes a similar historic internal water claim about three international straits along the Northern Sea Route (NSR). Further, Russia's NSR regulations require permits for ships, including sovereign immune vessels, to transit the NSR, which includes all of the territorial sea and EEZ of Russia's claimed Arctic waters. The United States has protested these excessive maritime claims as inconsistent with international law and does not recognize them. This will likely remain an issue on which the United States and a number of other nations will continue to disagree with Canada and Russia.

⁵ NATO created Enhanced Opportunity Partners (EOPs) at the Wales Summit in 2014. EOPs are more involved in NATO decision-making by participating in earlier and higher-level political consultations. NATO's five EOPs are Australia, Finland, Georgia, Jordan, and Sweden.

Diminishing sea ice will give rise to new economic opportunities in the region while simultaneously increasing concerns about human safety and protection of a unique ecosystem that many indigenous communities rely on for subsistence. In the near term, the increasing rate of coastal erosion similarly will threaten DoD's Arctic coastal infrastructure. In the mid- to far-term, as ice recedes and resource extraction technology improves, competition for economic advantage and a desire to exert influence over an area of increasing geostrategic importance could lead to increased tension. These economic and security concerns may increase the risk of disputes between Arctic and non-Arctic nations over access to Arctic shipping lanes and natural resources.

Russia

Recent Russian strategy documents emphasize the importance of the Arctic region to Russia and its national economy. Primary sources of revenue for Russia are generated through the energy and transportation sectors located in the northwestern region of the country. More than 20 percent of Russia's landmass lies above the Arctic Circle. Moscow has identified four main national interests in the Arctic: to use Russia's Arctic region as a national strategic resource base to support the country's socio-economic development; to preserve the region as a zone of peace and cooperation; to protect the environment; and to develop the NSR for transportation. Russian strategy documents also outline top priorities, which include: defense, continental shelf delimitation, and improving Arctic transportation and communication infrastructure. Intensifying Russian cooperation with Arctic nations and international organizations, including the Arctic Council and the Barents Euro-Arctic Council, is one of Russia's strategic priorities.

Russia delivered a partial revised extended continental shelf (ECS) submission to the Commission on the Limits of the Continental Shelf (CLCS) in 2015. In making its formal submission to the CLCS, Russia followed the appropriate procedure under the Law of the Sea Convention (LOSC) to determine the outer limits of its extended continental shelf. As of this writing, the CLCS is reviewing the data and analysis submitted by Russia and will make recommendations on the outer limits of the Russian continental shelf in the Arctic. This technical step is a part of the recognized process by which coastal States secure legal certainty in their sovereign rights and jurisdiction with respect to continental shelf beyond 200 nautical miles. It is important to note that Russia's submission does not include any areas where the United States may in the future establish its extended continental shelf. Although the United States has not acceded to the LOSC, the United States respects this process, which has facilitated an orderly and rules-based approach to delineating the extent of the continental shelf for countries around the world.

Canada

Canada views itself as a maritime nation with unique responsibilities, opportunities, and benefits due to its extensive Arctic coastline and maritime territory. Canada maintains that the NWP, which consists of a series of routes between the Atlantic and Pacific Oceans through the Canadian archipelago, has the status of historical internal waters, a view not shared by the United States, the European Union (EU), or other nations. Canada also claims authority to deny transit through the territorial sea and exclusive economic zone beyond its northern Arctic islands of ships that do not report in advance to the Canadian Coast Guard.

The Kingdom of Denmark

The Kingdom of Denmark is an Arctic nation by virtue of its historical ties to Greenland and the Faroe Islands and its current responsibilities for foreign affairs and defense on behalf of Greenland. The Kingdom of Denmark and Russia have overlapping ECS submissions to the CLCS, which has no authority to determine maritime boundaries; it is up to nations to resolve boundary disputes diplomatically. In 2013, the Ministry of Defense in Copenhagen established a Joint Arctic Command, which maintains a working-level liaison relationship with Thule Air Base, and the Joint Rescue Coordination Center in Greenland. Both entities maintain small permanent staffs to provide search and rescue service and patrols, marine environmental protection, and support to civilian authorities. The Kingdom of Denmark has limited domain awareness and response capacity due to the vastness of the region and a comparative lack of assets, infrastructure, and investment. Although stating that regional maritime security is a priority, in 2016 the Danish government cautioned commercial shipping and cruise lines about the harsh operating conditions and limited SAR assets in the region, implying that Danish defense forces may not be available for emergency assistance.

In June 2016, the Kingdom of Denmark released its Arctic Strategy. Citing the need for improved domain awareness; improved command, control and communication; and more operational capacity, Denmark has budgeted approximately \$18 million per year over the next decade for Arctic-specific defense investments. Funds will be used for an additional naval patrol vessel, an increase in Joint Arctic Command staff, and assets for domain awareness, including potential commercial satellite coverage and unmanned aircraft solutions.

Finland

Finland does not have a coastline on the Arctic Ocean; however, nearly one-third of its territory lies north of the Arctic Circle. All of Finland's Baltic Sea ports require icebreaking services in the winter. Finland is a leader in icebreaking technology and ice-capable ship construction and in extreme cold weather operations. Finland is also an EOP with NATO.

Iceland

Iceland views Arctic issues as vital to its national identity and foreign policy. It is important to note that the small island of Grimsey located 40 kilometers north of the main island is the basis for Iceland's claim as an Arctic nation. The Arctic Circle passes through this five square kilometer island with fewer than 100 inhabitants. As a small nation with no military of its own, Iceland relies on NATO guarantees for territorial defense.

The Kingdom of Norway

Norway views the Arctic as a top foreign and domestic policy priority. With one-third of its landmass, more than 10 percent of its population, and 80 percent of its territorial sea and EEZ lying above the Arctic Circle, Norway views Arctic development and stability as critical to both its security and its economy. Melting sea ice has increased the economic potential for the development of the Norwegian Arctic, including commercial shipping and oil and gas extraction. Norway emphasizes predictability and transparency as important for maintaining its "High North—low tension" policy.

The Kingdom of Sweden

Sweden does not have a coastline on the Arctic Ocean, but almost one-third of its territory lies north of the Arctic Circle. Some of Sweden's ports in the Gulf of Bothnia require icebreaker service in the winter. Sweden's Arctic Strategy identifies three main priorities: climate and the environment, with an emphasis on biodiversity protection; economic development in the Arctic and Barents Sea region; and the human dimension, which includes the preservation of Saami language and culture. Like Finland, Sweden is a NATO EOP.

Non-Arctic States

Non-Arctic States, particularly those with robust maritime sectors, have sought to increase their influence in the region and safeguard their ability to access potential resources and transit routes. Arctic Council Observers include France, Germany, Netherlands, Poland, Spain, the United Kingdom, China, Italy, Japan, Korea, Singapore, and India. The EU released an Arctic Strategy in 2013, reiterating its commitment to playing a bigger role in facilitating research, promoting climate change policies, and fostering cooperation.

V. MILITARY WAYS AND MEANS (CAPABILITIES) REQUIRED TO IMPLEMENT THE STRATEGY

The 2016 *Strategy*, like the NSAR, requires DoD to be capable of operating safely and effectively in the Arctic region and responding to a wide range of challenges to U.S. national interests in conjunction with other nations when possible and independently if necessary. The United States, in conjunction with Canada (as the other member of NORAD) and the other members of NATO, has effectively conducted operations in the Arctic region in defense of North America and the collective defense of NATO nations for decades. Forward-deployed air, land, and sea capabilities secure and advance U.S. national security interests and permit the United States to respond rapidly to emerging crises in the Arctic as elsewhere around the globe. The ways and means outlined below address materiel and non-materiel capabilities (e.g., bilateral military relationships, technical expertise) needed to implement the Arctic Strategy.

Command, Control, Communications, Computers, Combat Systems, Information, Surveillance, and Reconnaissance (C5ISR) are essential to all of the ways and means by which DoD will implement this strategy. Secure communications are fundamental to command and control of the full spectrum of potential DoD operations in the Arctic. However, vast distances, obsolete or deteriorating polar communications architecture, limitations of geostationary communication satellites, harsh weather conditions, high-latitude ionic disturbances, and geomagnetic storms ("space weather") combine to make reliable, secure communications in the Arctic difficult. Therefore, DoD will maintain existing limited polar communications capabilities and evolve those capabilities, particularly satellite coverage, which is essential for Arctic operations. In concert with relevant Federal departments and agencies, DoD will provide assured, resilient, and cost-effective polar communications capabilities and, consistent with national security interests, will develop and maintain international partnerships to enable such capacity.

Enhance the capability of U.S. forces to defend the homeland and exercise sovereignty.

Although in the near term DoD remains prepared to detect, deter, prevent, and defeat threats to the homeland, diminishing ice will eventually open a northern maritime avenue of approach to

North America, highlighting the importance of the maritime warning mission for NORAD and the Homeland Defense mission for USNORTHCOM, with associated requirements for a seasonal air and/or surface response capability. The breaking up of sea ice also threatens existing detection and warning infrastructure by increasing the rate of coastal erosion. As the maritime approaches become increasingly accessible in the mid- to far-term, DoD will seek to improve its detection and tracking capabilities in coordination with the Department of Homeland Security (DHS) and other departments and agencies, as well as through cooperation with allies and partner nations. Forums such as the DoD-DHS Capabilities Development Working Group are among the means to facilitate this cooperation and prevent duplication of effort and investment.

Strengthen deterrence at home and abroad. In light of the Russian violation of sovereignty and territorial integrity of Ukraine, Georgia, and Moldova, and Russia's efforts to intimidate its neighbors, DoD will continue a robust cycle of training and exercises in Europe under OPERATION ATLANTIC RESOLVE and will continue investments in improved posture and capabilities when needed by the combatant commanders. Although few Russian activities or investments occur in the Arctic region itself, they signal a recommitment to deterrence and to build capability to defeat aggression against the United States and its allies in the Arctic as well as in other regions. DoD's required capabilities include the full spectrum of U.S. forces, including nuclear and cyber forces. Accordingly, DoD will continue to conduct training and exercises in the Arctic as elsewhere and will assess its required force posture in light of the rate of environmental changes and geopolitical challenges.

The geostrategic importance of the Arctic also leads to the requirement to enhance exercises and training in the Arctic as well as in the GIUK gap and its approaches. Conducting exercises in a polar environment helps identify needed capabilities, builds operational expertise, and supports development of suitable TTPs. This facilitates development of extreme cold weather (-60 degrees Fahrenheit / -51 degrees Celsius) capabilities as well as TTPs applicable to other cold weather regions of the world. The span and scope of Arctic exercises must adapt to an evolving Arctic to ensure that DoD is capable of providing properly trained and equipped forces where and when needed. Expanding the scope and complexity of Arctic exercises with allies and partners is increasingly important in light of changes in the geostrategic environment since 2013.

Strengthen alliances and partnerships. Military-to-military engagements help establish, shape, and maintain international relations among like-minded nations preparing to work together to meet security challenges. DoD will continue its enhanced engagement with both NATO Allies and EOPs as it builds cooperative strategic partnerships that promote innovative, affordable security solutions and enhance burden-sharing in the Arctic. As it does so, DoD will also continue its cooperation with the Department of State and DHS, in particular the U.S. Coast Guard, which in 2015 established an Arctic Coast Guard Forum to foster the international partnerships required to support safe, secure, and environmentally responsible maritime activity in the Arctic region.

Preserve freedom of the seas in the Arctic. In support of the U.S. national security interest in preserving all of the rights, freedoms, and uses of the sea and airspace recognized under international law, DoD will preserve the global mobility of U.S. military and civilian vessels and

aircraft throughout the Arctic, as in other regions. This includes conducting Freedom of Navigation operations to challenge excessive maritime claims when and where necessary.

Engage public, private, and international partners to improve domain awareness in the Arctic. DoD continues to have responsibilities for awareness across all domains: air, land, maritime, space, and cyberspace. Domain awareness is more than developing and sharing information; it is the ability to understand the environment well enough to enable timely and effective decision-making. Adequate domain awareness is a key enabler for carrying out any national security mission, from protection of commerce to defeating adversaries. No single Federal department or agency possesses all the resources and capabilities necessary to develop and maintain comprehensive domain awareness in the Arctic.

To assist in anticipating challenges, DoD will continue to monitor the weather situation at high latitudes of the globe. Robust observations, remote sensing capabilities, and modelling of the space, air, sea surface, ice, and ocean environments that affect operations in the Arctic are key aspects of domain awareness and safe operations, particularly in a remote and harsh region. Public-private partnerships also play a role in developing domain awareness, as do interagency collaborative efforts, such as the National Ice Center, a multiagency center with the mission of providing worldwide operational sea ice analysis and forecasts for government agencies worldwide and the civil sector. DoD will continue to work with the Canadian Ministry of National Defence to improve air surveillance capabilities along the northern approaches to North America consistent with the evolving threat.

Evolve DoD Arctic infrastructure and capabilities consistent with changing conditions and needs. Some infrastructure is required to support DoD's operations even when DoD takes an expeditionary approach to future missions in the Arctic. Additional air, maritime, or surface transportation will be required to sustain operations, especially in the North American Arctic. Steps have been taken across the Federal Government to catalog maritime infrastructure requirements in the U.S. Arctic Region, including a port, of 43 near-, mid-, and long-term recommendations concerning navigable waterways, physical infrastructure, information infrastructure, response services, and vessels.⁶

Where possible, DoD leverages existing facilities, including those of allies and partners, to mitigate the high cost and long lead-time required for Arctic construction. If existing infrastructure is not able to support Service needs to execute combatant commander-directed missions, modifications to those facilities will be needed. These modifications will be made as part of the regular military construction or facilities sustainment, restoration, and modernization process. The ongoing refurbishment of the runway at Thule Air Base in Greenland and the modification of a hangar at Keflavik in Iceland to accommodate P-8 aircraft in the future are examples of how this process works in the Arctic as it does in other regions.

DoD will reevaluate capabilities required to meet its strategic objectives as conditions change and the combatant commanders identify operational requirements in updates to their plans as

⁶ Under the White House National Strategy for the Arctic Region 2014 Implementation Plan Task 1.1.2, the U.S. Committee on the Marine Transportation System (CMTS) prepared, and the Secretary of Transportation submitted, a 10-year framework to coordinate the phased development of the U.S. Arctic Region. The report was submitted on April 15, 2016.

described in sections II and III. Section VI describes the DoD approach to mitigating identified gaps.

Provide support to civil authorities and foreign humanitarian assistance. DoD will maintain its capability to respond to chemical, biological, radiological, and nuclear attacks or accidents in the United States and abroad. Although defense support of civil authorities and humanitarian assistance/disaster relief do not drive requirements for the size or shape of the force, DoD can provide capabilities such as airlift, communications, and logistics to support Federal, State, and local civil authorities as approved by the Secretary of Defense or under immediate response authority in life-threatening circumstances.

Partner with other departments, agencies, and nations to support safety. DoD shares a number of strategic and operational mission sets with interagency partners, particularly DHS. DoD Service components, specifically the U.S. Navy and U.S. Coast Guard, will continue to collaborate in venues such as the National Fleet Board to identify areas of commonality and interoperability as they refine both shared and complementary mission sets. DoD will leverage existing capabilities to support DHS and other departments and agencies in meeting international SAR obligations and responding to incidents such as oil spills in Arctic waters. It will also support interagency partners in maintaining human health; promoting healthy, sustainable, and resilient ecosystems; complying with applicable environmental laws and regulations; and consulting and coordinating with Alaska tribal entities on relevant policies and activities.

Support international institutions that promote regional cooperation and the rule of law. DoD recognizes the Arctic Council's efforts to develop cooperative approaches to a growing range of Arctic challenges. It also values the role that organizations such as the International Maritime Organization and the Arctic Regional Hydrographic Commission play in establishing rules, fostering dialogue, and peacefully resolving international issues. DoD's role in enhancing the regional security cooperation takes on new salience in light of Russia's aggressive and destabilizing behavior along its periphery and its investment in military facilities and capabilities within the Arctic.

DoD will continue to support United States accession to the LOSC, which enshrines all the rights, freedoms, and uses of the sea and airspace that support global mobility of U.S. forces, and rules that squarely align with and advance DoD long-term strategic interests. The LOSC applies to the Arctic as to other ocean regions.

In summary, DoD, working in concert with allies and partners, possesses the capabilities necessary to perform assigned missions in the near-term under current Arctic environmental and geopolitical conditions. DoD's missions may change as the conditions change and risks will increase as the capabilities of potential adversaries evolve. DoD will focus on enhancing the military's ability to operate in the Arctic consistent with the rate of change in the region. This includes anticipated changes in the physical and geopolitical environment as well as the threat environment in the mid- to far-term. DoD will assess emerging operational requirements identified through its established planning and programming processes to develop capabilities necessary for future operations in the Arctic. The effort will be informed by assessments of the capabilities and limitations of potential adversaries, allied and partner contributions, and the lead-time necessary to field new capabilities. In this constrained fiscal environment, DoD must

balance increasing defense investments in the Arctic with the need to make investments in other regions.

VI. DOD ARCTIC CAPABILITY AND RESOURCE GAPS

Arctic operations are inherently difficult and dangerous, particularly in the North American Arctic. Forces operating in the remote and austere Arctic region require specialized training and equipment to withstand the extreme cold weather conditions. Long distances and correspondingly lengthy transit times from established bases increase response times and will stress U.S. capability to sustain forces in remote polar areas. When operating in the Arctic, DoD forces are challenged to maneuver, employ, and sustain capabilities effectively due to limitations in extreme cold weather protective clothing; aging surface mobility platforms; ice, permafrost, and extreme weather conditions; limited navigation aids; and inadequately mapped terrain and poorly charted waters. Command and control of forces are challenged by limited satellite and terrestrial communications above 65 degrees north. In addition, very little of the Arctic Ocean is charted to modern standards. DoD will continue working with international and interagency partners to address these issues collaboratively.

Infrastructure development in the North American Arctic is costly due to the extreme weather, short building season, seasonally constrained lines of communication, and permafrost soil conditions in the North American Arctic. Those operating in the region must provide their own logistical support. Relying on or supplementing from the few existing population centers for operations of any size would likely overwhelm the civil infrastructure and adversely affect the local communities, which are wholly dependent upon this limited infrastructure.

According to the National Aeronautics and Space Administration, the Arctic is warming more rapidly than the rest of the planet. To operate safely and effectively in the region, DoD must adapt current and future operations to address the effects of environmental changes through: identification and assessment of the effects of climate change on the DoD mission; taking those effects into consideration in developing plans and implementing procedures; and anticipating and managing any risks that develop as a result of climate change to build resilience to the changing operational environment in the Arctic.

Though DoD has few niche Arctic capabilities, it has a significant portfolio of capabilities that can be employed in or adapted to a wide range of operating environments, including the Arctic, with proper preparation. Key challenges identified in the 2013 *Strategy* persist in 2016: shortfalls in observations, remote sensing capabilities, ice prediction, and weather forecasting; lack of navigational aids; challenges in high-latitude electronic communications; and limited inventory of ice-capable vessels and ground transportation; and infrastructure. Over time, recapitalization or modernization of existing platforms for air and ground mobility in the Arctic terrain (e.g., the Air National Guard's LC-130) will be critical for reaching remote areas not accessible by other means. DoD will plan for these investments through its existing programming and budgeting processes.

DoD will require personnel recovery capability to support its own future activities, particularly long-range operations in or over the Arctic Ocean. Additionally, salvage capability may also be needed. The extreme conditions of the Arctic environment and correspondingly short survival

time require methods to reduce response time through forward-deployed/based assets in a sustainable location and/or rapidly deployable air drop response/sustainment packages suitable to remote land, cold water, or ice pack operating environments.

DoD Arctic operations occur in a whole-of-government construct involving not only the combatant commanders and Military Departments and Services, but also other U.S. departments and agencies as well as State, local, and tribal entities. For example, if Alaska were affected by a natural or manmade disaster, the Alaska National Guard may be the first military force that responds in support of civil authorities. It is also likely that Arctic operations will involve allies and partner nations. Tabletop exercises and bilateral/multilateral dialogue to define potential command and control constructs and organization or task force approaches to enhance contingency responses will be needed to mitigate these gaps. Materiel capability gap mitigation will be undertaken at the department level via established DoD processes.

As mentioned in Section II, CDRUSNORTHCOM is responsible for advocating for Arctic capabilities for DoD. DoD Arctic stakeholders have agreed on the following definition to shape advocacy efforts: “Commander, USNORTHCOM, as DoD’s Arctic Capability Advocate, supports DoD Arctic Stakeholders to identify capability requirements and shortfalls across the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) spectrum in areas of defense, safety, and security while championing their resolution with our trusted partners.” This is accomplished through the ACAWG, a collaborative DoD forum that seeks information from DoD, interagency, and foreign partners to enable a holistic view of Arctic requirements. The ACAWG will advocate DOTMLPF-P solutions to close DoD capability gaps, inform future risk management and resourcing decisions, and shape DoD Arctic policy. The ability to operate and sustain forces in Arctic conditions should in some cases be a consideration during the design and fielding of new capabilities. DoD will assess requirements of the Military Departments and Services and combatant commands and make appropriate strategic choices in developing its annual budget submissions.

Addressing needs in step with the rate at which activity in the Arctic increases and balancing potential investments in Arctic-specific capabilities with other national security priorities and fiscal realities will remain as challenges for DoD. Cooperation with allies and partners and a whole-of-government approach will also help mitigate gaps, as discussed in more detail in the following section.

VII. ASSESSMENT OF MILITARY-TO-MILITARY COOPERATION WITH PARTNER NATIONS

Security cooperation activities and other military-to-military engagements continue to shape and maintain international relations and partnerships that are necessary to reduce the potential for friction and miscalculation. DoD’s cooperative approach with militaries, interagency partners, and other stakeholders in the Arctic across all of its missions is a key factor in maintaining a secure and stable region, defending the U.S. homeland, and safeguarding U.S. national interests. Alliances and partnerships are also vital to the defense of the United States and our allies and partners. Bilateral and multilateral training and exercises that enhance interoperability directly support U.S. goals for regional security and stability.

As touched on in Section III, Canada and the United States established NORAD on May 12, 1958, and have remained indispensable bilateral partners in defending the northern approaches to North America ever since. NORAD has evolved to meet new security challenges, and the foundational changes in the Arctic present an opportunity to evolve this close relationship in the northern approaches. NORAD, USNORTHCOM, and the Canadian Joint Operations Command established a Tri-Command approach to defending the northern approaches with a primary goal of enhancing military cooperation and unity of effort in the preparation for and conduct of defense, security, and safety operations in the Arctic. U.S.-Canadian shared values, geography, and close relationship help support evolving the concept of the defense of North America that promotes strong security alignments and burden sharing.

NATO Allies and closely-aligned nations such as the EOPs also share common values and a cooperative approach to defense, security, and safety in the region. The United States enjoys robust military cooperation with the Nordic countries, such as extreme cold weather training and air operations training in Arctic conditions. The high technological capability and interoperability of the Nordic militaries combined with their geographic location make them extremely valuable military partners. DoD will continue to build closer relationships with its strategic partners that promote innovative defense solutions, information sharing, and partnership building for common challenges in the Arctic region.

Finally, DoD and its allies and partners are exploring partnerships on current and future satellite communications programs and information-sharing/collaborative tools to support current and future Arctic operational requirements. This is in response to the realization that human activity in the Arctic is increasing, threats in the north are evolving, and the existing DoD and partner communications capabilities in the Arctic require enhancement to support increased mission requirements.

DoD will continue activities that support our allies and partners to maintain security and stability in the Arctic. Where possible, these activities should complement NATO and EU efforts to the same ends. Some of these activities include:

- Regional Partnering and Collaboration: Regional forums and exercises, such as ASFR, VIGILANT SHIELD,⁷ ARCTIC ZEPHYR, Greenland SAR exercise (SAREX), and ARCTIC EDGE,⁸ build common understanding and confidence and are important to maintaining bilateral and multilateral relationships.

⁷ VIGILANT SHIELD is an annual NORAD and USNORTHCOM exercise that trains the NORAD and USNORTHCOM Headquarters (HQ) Staff in homeland defense missions and processes. It provides NORAD the opportunity to exercise wartime operations in support of North American homeland defense in the northern approaches, Operation NOBLE EAGLE, and HQ NORAD's strategic national and theater joint mission-essential tasks.

⁸ ARCTIC EDGE (AE) is a Joint Exercise Program, NORAD- and USNORTHCOM-scheduled exercise, conducted as a live-virtual-constructive event. AE is designed to exercise tactical units in Homeland Defense (HD) and Homeland Security (HS) missions in the north during potential Arctic conditions and to validate concepts executed during VIGILANT SHIELD exercises. ARCTIC CHINOOK 18, a portion of AE18, is a multinational Arctic-shipment-lanes-specific SAREX.

- Maritime Operational Access: COLD RESPONSE,⁹ ICEX,¹⁰ and similar exercises maintain extreme cold weather operational skills and continue longstanding practices of regular military access to Arctic air, sea, and subsurface regions.
- Interoperability and Mutual Support: Interoperability is critical in the Arctic region. Whether in aviation, maritime, land, or cyber domains, coordinated training and exercises and joint/combined deployments serve to mitigate the complexities and risks of Arctic operations. Maintaining forward-positioned equipment in Norway is an example of mutual support and is critical for assuring our allies and partners in the region. Sustaining the NATO Air Policing mission over Iceland is another way to build interoperability while sending a strong deterrent signal.
- Maritime Domain Awareness: Although the Arctic is not exclusively a maritime domain, much of the uncertainty associated with the region is a result of increasing maritime activity. Efforts that combine information from various countries and sources into a Common Operational Picture are paramount to developing an effective yet affordable understanding of Arctic activity.
- Environmental Security: Military-to-military engagements to improve environmental security, such as through the Defense Environmental International Cooperation program, should focus on efforts to improve the effectiveness of forces operating in the Arctic and mitigate the effects of climate change on military operations and facilities in the region.
- Safety: Increasing population and activity in the Arctic will likely increase the demand signal to support the U.S. Coast Guard SAR missions or provide Foreign Disaster Relief and Humanitarian Assistance to foreign partners. Participation in ARCTIC ZEPHYR, ARCTIC CHINOOK, Canada's Operation NANOOK,¹¹ and the Greenland SAREX provides opportunities to improve SAR capabilities with both domestic and foreign partners.

DoD will continue to build cooperative strategic partnerships that support U.S. national security interests in the Arctic and seek to increase opportunities with Arctic partners to enhance regional expertise and extreme cold-weather operational experience.

CONCLUSION

DoD will continue to work collaboratively with allies and partners through the ways and means outlined in the 2016 *Strategy* to support the development of the Arctic as a secure and stable

⁹ USEUCOM conducts Exercise COLD RESPONSE in the Kingdom of Norway in order to rehearse reception, staging, onward movement, and integration of participating U.S. forces in support of plans for the reinforcement of Norway, enhanced interoperability with allies and partners, and improved U.S. force capability to operate in an austere cold weather environment.

¹⁰ ICEX allows DoD to assess readiness to operate in the Arctic, increase operational experience in the region, develop partnerships and collaborative efforts, and advance understanding of the Arctic environment. ICEX is supported by a temporary ice camp on an ice floe in the Arctic Ocean north of Alaska to support submarine operations, research, and training.

¹¹ Operation NANOOK is Canada's largest annual sovereignty operation in Canada's North with invited international participation. It is designed to assert Canada's sovereignty over its northern-most regions; enhance the Canadian Armed Forces' ability to operate in Arctic conditions; improve coordination in whole-of-government operations; and maintain interoperability with international mission partners for maximum effectiveness in response to safety and security issues in the North.

region where U.S. national interests are safeguarded, the U.S. homeland is defended, and like-minded nations work together to address emerging challenges. Addressing gaps in key enablers, particularly C5ISR, domain awareness, remote sensing and observing capabilities, ice prediction, and weather forecasting remains a priority. DoD remains committed to supporting U.S. efforts to achieve the objectives outlined in the NSAR and to mitigating risks posed by the growing geostrategic importance of the region and increasing challenges to existing governance structures and international law and standards.