



June 2020

# CLIMATE RESILIENCE

## Actions Needed to Ensure DOD Considers Climate Risks to Contractors as Part of Acquisition, Supply, and Risk Assessment

Accessible Version

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### Actions Needed to Ensure DOD Considers Climate Risks to Contractors as Part of Acquisition, Supply, and Risk Assessment

#### Why GAO Did This Study

Since 2010, DOD has identified climate change as a threat to its operations and installations. The department relies on contracted goods and services for its mission and installations. Climate change is projected to have broad effects that could affect DOD's supply chains, and any associated risks to contractors can have an impact on DOD. One way DOD assesses risk to its missions is through mission assurance, which is a process to protect or ensure the function of capabilities and assets critical to its missions.

GAO was asked to review potential threats to national security from the effects of climate change on defense contractors. GAO examined the extent to which DOD assesses the potential effects on its operations from climate change and extreme weather risks faced by its contractors through the department's (1) acquisition and supply processes, and (2) mission assurance process. GAO reviewed DOD acquisition, supply, and mission assurance documents and interviewed relevant DOD officials and contractor representatives.

#### What GAO Recommends

GAO is making six recommendations, including that DOD incorporate climate adaptation into its acquisition and supply guidance and issue or update guidance on mission assurance-related assessments for commercial facilities. DOD concurred with three recommendations and partially concurred with three. GAO continues to believe that DOD should fully implement its recommendations.

View [GAO-20-511](#). For more information, contact Elizabeth A. Field at (202) 512-2775 or [field1@gao.gov](mailto:field1@gao.gov)

#### What GAO Found

The Department of Defense (DOD) has not routinely assessed climate-related risks faced by its contractors as part of its acquisition and supply processes, through which DOD obtains contracted goods and services. DOD's acquisition process includes long-term planning activities such as life-cycle sustainment planning. Its supply chain process includes steps to identify and assess potential disruptions, such as severe storms affecting transportation or energy systems, in order to mitigate risk. However, these processes in general do not systematically identify and consider climate-related risks to materiel acquisition and supply or the acquisition of weapon systems, according to Office of the Secretary of Defense (OSD) and military department officials. DOD's climate change adaptation directive indicates that OSD and the military departments should include climate considerations in acquisition and supply and integrate those considerations into relevant policy and guidance.

However, GAO's review of DOD and military department guidance on acquisition and supply found that the guidance did not implement DOD's climate change directive by including consideration of climate change or extreme weather. Until DOD and the military departments include these considerations in their guidance on acquisition and supply chain processes, they risk continuing to develop acquisition strategies and managing supply chains without building climate resilience into these processes and potentially jeopardizing their missions.

DOD guidance requires consideration of climate-related risks as part of the mission assurance process, when appropriate. However, GAO found that the department has not assessed risks—including those associated with climate change or extreme weather—to commercially owned facilities, which can support DOD installations as well as weapon systems, as part of this process. Assessing risks to commercial facilities has been a longstanding challenge for DOD, with the department noting in 2012 that it had paid inadequate attention to challenges outside of DOD-owned facilities and citing a limited understanding of supply chain risks as a pervasive problem. DOD's mission assurance guidance includes minimum requirements for assessments of certain non-DOD-owned facilities, such as completion of an all-hazards threat assessment. However, DOD officials stated that they had not conducted such assessments.

The officials noted that DOD is limited in its ability to conduct such assessments, as it does not have the same access to commercial facilities as it does to its own facilities. While DOD officials stated that they are exploring alternative ways of assessing risks to commercial facilities, they noted that these efforts are in the early stages. Without determining what approaches may be feasible for assessing risks to commercial facilities as part of the mission assurance process and issuing or updating guidance accordingly, DOD may not fully evaluate the risks to critical commercial facilities as part of the mission assurance process, leaving gaps in its knowledge of potential risks—to include climate and weather-related risks—to its ability to fulfill key missions dependent on such facilities.

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**Abbreviations**

DCMA	Defense Contract Management Agency
DFARS	Defense Federal Acquisition Regulation Supplement
DOD	Department of Defense
FAR	Federal Acquisition Regulation
OSD	Office of the Secretary of Defense
OUSD A&S	Office of the Under Secretary of Defense for Acquisition and Sustainment
SEC	Securities and Exchange Commission

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June 25, 2020

The Honorable Jack Reed  
Ranking Member  
Committee on Armed Services  
United States Senate  
The Honorable Elizabeth Warren  
United States Senate

Since 2010 the Department of Defense (DOD) has identified climate change as a threat to its operations.<sup>1</sup> DOD stated in a January 2019 report to Congress that the effects of a changing climate constitute a national security issue posing potential impacts to the department's missions, operational plans, and installations.<sup>2</sup> To carry out its mission needs and to maintain fully functioning installations, DOD relies on a wide range of contracted goods and services, including weapon system and base operations support, consulting and administrative support, and information technology services, as well as weapon systems, food, uniforms, and operational support.

The U.S. Global Change Research Program's *Fourth National Climate Assessment* indicates that climate change is projected to have broad effects on multiple sectors that can affect contractor support and DOD supply chains, including disruptions to energy, water, and transportation

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<sup>1</sup>DOD, *Quadrennial Defense Review Report* (February 2010).

<sup>2</sup>Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report on Effects of a Changing Climate to the Department of Defense* (January 2019).

systems.<sup>3</sup> Extreme weather events can damage contractor facilities as well as shut down highways, bridges, and ports, leading to delays and disruptions in providing critical goods and services to DOD. For example, severe storms can result in damage to commercial properties, workforce challenges, and negative effects on overall local infrastructure, which may require additional time and resources to mitigate. Risks to DOD's contractors can therefore have an effect on the department's ability to execute its operations. As a result of the risks posed by climate change, in February 2013 we placed *Limiting the Federal Government's Fiscal Exposure by Better Managing Climate Change Risks* on our High-Risk List.<sup>4</sup>

We have previously reported on the effects of climate change and extreme weather on DOD installations and on the department's efforts to increase its climate resilience.<sup>5</sup> For example, in June 2019 we reported on the extent to which DOD had taken steps to incorporate resilience to extreme weather and climate change effects into selected installation master plans and selected individual installation facilities projects. We found that DOD installations had not consistently assessed risks from

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<sup>3</sup>U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart, eds.], (Washington, D.C.: 2018). We have previously reported that infrastructure, such as roads and bridges and wastewater systems, is vulnerable to climate changes; that energy infrastructure can be affected by both acute weather events and long-term climate changes, in turn causing disruptions to energy transmission and distribution; and that extreme weather events resulting from climate change can have a negative effect on drinking water and wastewater utilities; all of which could affect DOD missions. See GAO, *Climate Change: Future Federal Adaptation Efforts Could Better Support Local Infrastructure Decision Makers*, [GAO-13-242](#) (Washington, D.C.: April 12, 2013); GAO, *Climate Change: Energy Infrastructure Risks and Adaptation Efforts*, [GAO-14-74](#) (Jan. 31, 2014); and GAO, *Water Infrastructure: Technical Assistance and Climate Resilience Planning Could Help Utilities Prepare for Potential Climate Change Impacts*, [GAO-20-24](#) (Washington, D.C.: Jan. 16, 2019).

<sup>4</sup>GAO, *High-Risk Series: An Update*, [GAO-13-283](#) (Washington, D.C.: Feb. 14, 2013). See also GAO, *High-Risk Series: Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas*, [GAO-19-157SP](#) (Washington, D.C.: Mar. 6, 2019).

<sup>5</sup>See GAO, *Climate Resilience: DOD Needs to Assess Risk and Provide Guidance on Use of Climate Projections in Installation Master Plans and Facilities Designs*, [GAO-19-453](#) (Washington, D.C.: Jun. 12, 2019); GAO, *Climate Change Adaptation: DOD Needs to Better Incorporate Adaptation into Planning and Collaboration at Overseas Installations*, [GAO-18-206](#) (Washington, D.C.: Nov. 13, 2017); GAO, *Climate Change Adaptation: DOD Can Improve Infrastructure Planning and Processes to Better Account for Potential Impacts*, [GAO-14-446](#) (Washington, D.C.: May 30, 2014).

extreme weather and climate change effects, or consistently used climate projections to anticipate future climate conditions. We also found that individual project designs at the installations we reviewed generally did not consider climate projections, according to installation officials. We made eight recommendations, including that the military departments update master planning criteria to require an assessment of extreme weather and climate change risks, and that they incorporate, as appropriate, DOD guidance on the use of climate projections into facilities design standards. As of April 2020, DOD had implemented our recommendations regarding a risk assessment of extreme weather and climate change risks in installation master plans, and it expected to issue guidance on the use of climate projections in facilities design standards in the fourth quarter of fiscal year 2020.

You asked us to review potential threats to national security resulting from the effects of climate change on defense contractors and the defense supply chain.<sup>6</sup> This report examines the extent to which DOD assesses the potential effects on its operations from climate change and extreme weather risks faced by its contractors through the department's (1) acquisition and supply processes, and (2) mission assurance process. DOD guidance on the defense acquisition system provides principles, policies, and procedures for the acquisition of products, services, and technologies necessary to support U.S. armed forces, and its guidance on the management of the department's supply chain notes that it is DOD policy to identify, monitor, and assess potential disruptions within and outside of the supply chain.<sup>7</sup> DOD established a mission assurance process, which it uses to protect or ensure the continued function and resilience of capabilities and assets by refining, integrating, and synchronizing the aspects of security, protection, and risk-management programs that relate directly to mission execution. DOD defines mission assurance as a process to protect or ensure the continued function and resilience of capabilities and assets—including personnel, equipment, facilities, networks, information and information systems, infrastructure, and supply chains—critical to the execution of the department's mission-

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<sup>6</sup>DOD defines supply chain, in part, as the linked activities associated with providing materiel to end users for consumption. DOD Instruction 4140.01, *DOD Supply Chain Materiel Management Policy* (Mar. 6, 2019).

<sup>7</sup>See, e.g., DOD Directive 5000.01, *The Defense Acquisition System* (May 12, 2003) (incorporating change 2, Aug. 31, 2018); DOD Instruction 5000.02T, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating change 6, Jan. 23, 2020); DOD Instruction 4140.01, para. 1.2.c.

essential functions in any operating environment or condition.<sup>8</sup> In short, mission assurance focuses on the fulfillment of critical DOD missions, and it does so by identifying the assets and capabilities needed to fulfill those critical missions, then assessing and managing risks to those assets and capabilities.

For objective one, we reviewed DOD and military department guidance on the acquisition and supply processes to determine the extent to which the guidance included consideration of climate change or extreme weather.<sup>9</sup> We also reviewed the Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) to determine the extent to which they included provisions related to identification or assessment of climate-related risks. We interviewed officials involved in contracting and acquisition policy in the Office of the Secretary of Defense (OSD) and the military departments to discuss the extent to which requirements or considerations related to climate-related risks were incorporated into DOD contracts. We also reached out to representatives of the top five defense contractors by dollar volume of DOD contracts in fiscal year 2018, the most recent full year of data available at the time we began our review, to discuss the extent to which the contractors identified climate-related risks to their operations and shared such information with DOD.<sup>10</sup> We met with four of the five contractors and received written comments from the fifth. To identify disclosures related to climate change and extreme weather risks by DOD contractors, we reviewed publicly available documents such as filings with the U.S. Securities and Exchange Commission (SEC) by the top 20 DOD contractors by fiscal year 2018 dollar volume of contracts.<sup>11</sup> We compared

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<sup>8</sup>DOD Directive 3020.40, *Mission Assurance (MA)* (Nov. 29, 2016) (change 1 effective Sept. 11, 2018).

<sup>9</sup>For the purposes of this report, we generally use the term “acquisition” to refer to the operation of the defense acquisition system, the management process by which DOD provides systems to its users. DOD defines an acquisition program as a directed, funded effort that provides a new, improved, or continuing materiel, weapon, or information system or service capability in response to an approved need. DOD Directive 5000.01, para. 3.2. Also throughout this report, we use the term “supply” to refer to the defense supply chain, as defined previously.

<sup>10</sup>We selected the largest DOD contractors based on the scope and range of their work for DOD.

<sup>11</sup>To identify the largest DOD contractors by dollar volume of contracts, we used data from the Federal Procurement Data System-Next Generation (FPDS-NG), the federal government’s central repository for contracting data.



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the extent to which DOD had assessed potential climate-related risks to its contractors with DOD's guidance on climate change adaptation and resilience.

For objective two, we focused on DOD's actions to assess risk to commercial facilities that provide contracted goods or services to DOD. We reviewed DOD guidance on its mission assurance process to determine the extent to which this process includes consideration of climate change and extreme weather risks.<sup>12</sup> We interviewed or contacted officials involved in mission assurance in OSD, the Joint Staff, the Defense Contract Management Agency (DCMA), and the military departments. We requested any mission assurance-related assessments for commercial assets deemed critical to supporting key departmental missions. We compared the extent to which DOD had assessed climate change and extreme weather-related risks to contracted goods and services as part of the mission assurance process with DOD's guidance on mission assurance. More information on our scope and methodology can be found in appendix I.

We conducted this performance audit from June 2019 to June 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

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### Extreme Weather and Climate Change Effects

The U.S. Global Change Research Program's *Fourth National Climate Assessment* states that the effects of climate change are already being felt in the United States and are projected to intensify in the future. These observed and projected effects vary by location and include increases in the incidence of extreme temperatures, heavy precipitation events, high tide flooding events along the coastline, and forest fires in the western

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<sup>12</sup>E.g., DOD Directive 3020.40; DOD Instruction 3020.45, *Mission Assurance (MA) Construct* (Aug. 14, 2018).

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continental United States and Alaska. In addition, sea levels are expected to continue to rise along almost all U.S. coastlines.

According to the National Research Council, although the exact details cannot be predicted with certainty, climate change poses serious risks to many of the physical and ecological systems on which society depends.<sup>13</sup> Moreover, according to key scientific assessments, the effects and costs of extreme weather events such as floods and droughts will increase in significance as events that are currently considered rare become more common and intense because of climate change.<sup>14</sup> According to the National Academies of Sciences, Engineering, and Medicine, extreme weather events are directly traceable to loss of life, rising food and energy prices, increasing costs of disaster relief and insurance, fluctuations in property values, and concerns about national security.<sup>15</sup>

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## Climate Resilience

We and others, such as the National Academies of Sciences, Engineering, and Medicine, have recommended enhancing climate resilience as one strategy to help limit the federal government's fiscal exposure to the effects of climate change. Enhancing climate resilience means being able to plan and prepare for, absorb, recover from, and more successfully adapt to climate-related impacts, such as those

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<sup>13</sup>The National Research Council is the principal operating agency of the National Academies of Sciences, Engineering, and Medicine for furnishing scientific and technical advice to governmental and other organizations. See, National Research Council, Committee on America's Climate Choices, *America's Climate Choices* (Washington, D.C.: 2011); National Research Council, *Climate Change: Evidence, Impacts, and Choices* (Washington, D.C.: 2012).

<sup>14</sup>Jerry M. Melillo, Terese (T.C.) Richmond, and Gary W. Yohe, eds., *Climate Change Impacts in the United States: The Third National Climate Assessment* (Washington, D.C.: U.S. Global Change Research Program, May 2014); and *Intergovernmental Panel on Climate Change, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects*, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

<sup>15</sup>For the national security implications of climate change and associated hazards, see, for example, Director of National Intelligence Daniel R. Coats, *Worldwide Threat Assessment of the U.S. Intelligence Community*, Statement for the Record for the Senate Select Committee on Intelligence (Jan. 29, 2019).

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identified by the U.S. Global Change Research Program in the 2018 *Fourth National Climate Assessment*.<sup>16</sup> Examples of resilience measures to protect infrastructure include raising river or coastal dikes to reduce the risks to infrastructure from sea level rise, building higher bridges, and increasing the capacity of stormwater systems. As we have previously reported, enhancing climate resilience can add additional costs up front, but it can also reduce potential future costs incurred as a result of damage from climate-related events.<sup>17</sup>

DOD's directive on climate change adaptation and resilience indicates that maintaining an effective and efficient U.S. military requires that the department be able to adapt current and future operations to address the impacts of climate change. The directive further states that mission planning and execution must therefore include identification and assessment of the effects of climate change on the DOD mission; taking those effects into consideration when developing plans and implementing procedures; and anticipating and managing any risks that develop as a

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<sup>16</sup>The National Academies of Sciences, Engineering, and Medicine defines resilience as the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events. The National Academies, Committee on Increasing National Resilience to Hazards and Disasters and Committee on Science, Engineering, and Public Policy, *Disaster Resilience: A National Imperative* (Washington, D.C.: 2012). We reported in 2016 that two related sets of actions that can enhance climate resilience by reducing risk include climate change adaptation and hazard mitigation. Adaptation involves adjustments to natural or human systems in response to actual or expected climate change, including increases in the frequency or severity of weather-related disasters. Hazard mitigation refers to actions taken to reduce the loss of life and property by lessening the effects of adverse events, and it applies to all hazards, including terrorism and natural hazards such as health pandemics or weather-related disasters. For more information, see, for example, GAO, *Climate Change: Selected Governments Have Approached Adaptation through Laws and Long-Term Plans*, [GAO-16-454](#) (Washington, D.C.: May 12, 2016); and Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner, eds., "Overview," in *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart, eds., (U.S. Global Change Research Program, Washington, D.C.) DOD defines adaptation as adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative efforts, and it defines resilience as the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. DOD Directive 4715.21, *Climate Change Adaptation and Resilience* (Jan. 14, 2016) (change 1 effective Aug. 31, 2018).

<sup>17</sup>[GAO-17-317](#), *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others* (Washington, D.C.: Feb. 15, 2017).

result of climate change in order to build resilience.<sup>18</sup> Primary responsibility for the directive lies with the Under Secretary of Defense for Acquisition and Sustainment, and the directive assigns responsibilities for various activities throughout the department related to assessing and managing risks associated with the impacts of climate change. For example, it assigns DOD component heads the responsibility for integrating climate change considerations into DOD component policy, guidance, plans, and operations.<sup>19</sup>

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## Defense Contracting

DOD has long relied on contractors to provide a wide range of goods and services. In fiscal year 2019, DOD obligated \$381 billion, more than all other federal agencies combined, for contracted goods and services, according to data from the Federal Procurement Data System-Next Generation. That year DOD's contract obligations were split nearly evenly between goods and services. While DOD contracts with thousands of companies, the five largest companies—Lockheed Martin, Boeing, Raytheon, General Dynamics, and Northrop Grumman—received about 30 percent of DOD's contract obligations in fiscal year 2019. These companies often operate as prime contractors, and they may subcontract portions of the contracted work to various other companies.

Federal contracting is governed by the FAR, which provides uniform policies and procedures for acquisition by all executive agencies.<sup>20</sup> DOD implements and supplements these regulations through the DFARS. Together these regulations generally govern DOD's planning for, soliciting offers for, and management of contracts for goods and services.

In addition, DOD has guidance that governs the defense acquisition system, and this guidance provides principles, policies, and procedures for acquisition of products, services, and technologies necessary to support U.S. armed forces.<sup>21</sup> For example, DOD's instruction on the

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<sup>18</sup>See DOD Directive 4715.21, para. 1.2.

<sup>19</sup>*Id.* para. 2.13. DOD components include the Office of the Secretary of Defense, the military departments, the office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the combatant commands, the office of the DOD Inspector General, the defense agencies, the DOD field activities, and all other organizational entities within DOD.

<sup>20</sup>Federal Acquisition Regulation (FAR), 48 C.F.R. § 1.101 (2019).

<sup>21</sup>*E.g.*, DOD Directive 5000.01; DOD Instruction 5000.02T.

operation of the defense acquisition system establishes processes such as life-cycle sustainment planning for weapon systems, which outlines the methods by which a weapon system will be sustained throughout its life cycle. The office of primary responsibility for the directive and instruction on the defense acquisition system is the Under Secretary of Defense for Acquisition and Sustainment.

Likewise, DOD's instruction on supply chain materiel management policy establishes policy and assigns responsibilities for supply chain management. For example, the instruction indicates that it is DOD policy to identify, monitor, and assess the security of and potential disruptions within and outside of the DOD supply chain in order to mitigate risk to supply chain operations.<sup>22</sup> According to the instruction, the Under Secretary of Defense for Acquisition and Sustainment establishes DOD policy and develops implementing guidance on all matters relating to DOD materiel management.

We provide additional information on consideration of climate-related risks and other environmental issues as part of the contracting process in appendix II.

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## DOD Mission Assurance Process

DOD uses mission assurance as a process to protect or ensure the continued function and resilience of capabilities and assets by refining, integrating, and synchronizing the aspects of DOD security, protection, and risk-management programs that relate directly to mission execution. DOD Directive 3020.40 establishes DOD policy and assigns responsibilities regarding mission assurance. For example, it states that the Under Secretary of Defense for Policy serves as the principal staff assistant to the Secretary of Defense on mission assurance. The directive also tasks the Under Secretary of Defense for Policy with managing the sector-specific agency responsibilities for the national defense industrial

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<sup>22</sup>DOD Instruction 4140.01, para. 1.2.c.

base sector, as assigned to DOD by the February 2013 Presidential Policy Directive on critical infrastructure security and resilience.<sup>23</sup>

The directive tasks the Under Secretary of Defense for Acquisition and Sustainment with responsibility for, among other things, integrating mission assurance goals and activities with acquisition and installation guidance; applying mission assurance processes to the defense industrial base, as applicable; and synchronizing and integrating mission assurance with the policy and efforts of DOD's climate change adaptation and resilience efforts. The directive also states that the DOD component heads— which would include the secretaries of the military departments and directors of defense agencies such as the Defense Contract Management Agency— will implement the mission assurance process to identify, assess, manage, and monitor the risk to missions, systems, and assets that support mission execution; will publish or update their own policy to align with the mission assurance process; and, as necessary, will coordinate with other DOD component heads and federal departments and agencies and, as appropriate, consult with other non-DOD entities such as the private sector to implement the mission assurance process.

DOD's April 2012 mission assurance strategy cited naturally occurring hazards as one of the challenges to DOD's ability to perform its mission-essential functions. The strategy further notes that mission assurance must address an all-threats and all-hazards environment, including threats to commercially owned infrastructure, facilities, and capabilities, including those in the defense industrial base. It also states that DOD must adopt a comprehensive framework for mission assurance in order to manage risk in a way that accounts for DOD dependence on civilian capabilities and assets.<sup>24</sup> According to DOD's mission assurance directive, the goals of DOD's mission assurance process are to identify and prioritize critical missions, capabilities, functions, systems, and supporting assets; develop and implement a comprehensive and integrated mission assurance risk-management construct; use risk-informed decision-making to optimize risk reduction solutions; and partner

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<sup>23</sup>DOD Directive 3020.40, para 2.1.j. Presidential Policy Directive 21, *Critical Infrastructure Security and Resilience* (Feb. 12, 2013). The defense industrial base is the worldwide industrial complex that enables research and development, as well as design, production, delivery, and maintenance of military weapons systems, subsystems, and components or parts, to meet U.S. military requirements.

<sup>24</sup>DOD, *Mission Assurance Strategy* (April 2012).

with non-DOD entities, as appropriate and as permitted by law, to reduce risk.<sup>25</sup> The mission assurance construct consists of the following four processes:

1. Identifying what is important for DOD missions— referred to as critical assets— and why it is important by analyzing DOD missions and identifying assets and capabilities critical to executing those missions;
2. Assessing the risks to those assets and capabilities determined to be important;
3. Managing these risks, including developing risk management plans and risk response plans; and
4. Monitoring threats, operational and situational reporting, and tracking risk management implementation.

The risk assessment step of the mission assurance process includes identifying and evaluating threats, hazards, and associated vulnerabilities to assess the risk to an asset or system and the mission it supports. Various mission assurance-related assessments can be conducted as part of this step, including all-hazards threat assessments, which identify threats and hazards to an asset or capability, along with assessing the likelihood of these events occurring. The DOD instruction on the mission assurance process notes that many of the assets DOD relies upon to execute its strategic missions are either owned or supported by entities outside of DOD, and, accordingly, DOD may not be able to perform all the mission assurance processes as it would for DOD-owned infrastructure. However, it indicates that mission owners will produce all-hazards threat assessments for certain non-DOD owned assets that DOD has designated as critical to fulfilling its missions.<sup>26</sup>

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## DOD Has Not Routinely Assessed Climate-Related Risks to Contractors in Its Acquisition and Supply Processes

DOD has not routinely assessed climate-related risks faced by its contractors as part of the department's acquisition and supply processes,

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<sup>25</sup>DOD Directive 3020.40, para. 1.2.g.

<sup>26</sup>See DOD Instruction 3020.45, paras 4.1, 4.2b.

through which the department obtains the contracted goods and services necessary for its operations and missions. DOD's acquisition process includes long-term planning activities such as life-cycle sustainment planning, which addresses sustainment risks as well as risk mitigation strategies, among other things.<sup>27</sup> Further, the DOD instruction related to the supply chain materiel management process indicates that it is DOD policy to identify, monitor, and assess the security of and potential disruptions within and outside of the DOD supply chain in order to mitigate risk to supply chain operations.<sup>28</sup> As noted previously, such disruptions can include natural disasters such as severe storms that can delay or damage transportation and energy systems, among others.

However, OSD and military department officials involved in acquisition and supply told us that these processes do not routinely assess climate-related risks to DOD's contractors because the processes do not systematically identify and consider climate-related risks to materiel acquisition and supply or to the acquisition of weapon systems more broadly. Officials in the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) noted that DOD is working to identify vulnerabilities and increase resilience of its own facilities to climate change effects, but they do not currently envision adapting that work for use on DOD's supply chain, to include those goods and services provided by its contractors.

DOD acquisition and supply processes are directed by numerous guidance documents at both the DOD and military department levels, including DOD Directive 5000.01, *The Defense Acquisition System*, and DOD Instruction 5000.02T, *Operation of the Defense Acquisition System*,<sup>29</sup> which provide the principles, policies, and procedures by which DOD acquires new, improved, or continuing materiel, weapon or

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<sup>27</sup>DOD Instruction 5000.02T.

<sup>28</sup>DOD Instruction 4140.01, para. 1.2.c.

<sup>29</sup>In January 2020 DOD issued a new version of DOD Instruction 5000.02 and renamed its previous guidance document 5000.02T to reflect that it will be used to transition to new issuances. See DOD Instruction 5000.02, *Operation of the Adaptive Acquisition Framework* (Jan. 23, 2020); DODI 5000.02T, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating change 6, Jan. 23, 2020). DOD is in the process of developing and issuing separate acquisition guidance documents covering content currently included in DODI 5000.02T, including guidance on life-cycle sustainment planning. As of the date of this report, DODI 5000.02T was still in effect.



information systems, or service capabilities.<sup>30</sup> The military departments have also issued guidance to implement the DOD acquisition guidance.<sup>31</sup> We also reviewed guidance specific to supply chain management, such as DOD Instruction 4140.01, *DOD Supply Chain Materiel Management Policy*, and military department-level guidance to implement this instruction. However, our review of DOD's guidance on acquisition and supply found that none of the relevant guidance has been updated to incorporate climate change considerations.

DOD's directive on climate change adaptation and resilience includes several provisions related to incorporating climate change considerations into processes that the department uses to obtain goods and services, including provisions assigning the following responsibilities:

- The Assistant Secretary of Defense for Logistics and Materiel Readiness is to identify and consider the risks that climate change poses to materiel acquisition and supply, including critical suppliers and critical components, and integrate consideration of the effects of a changing climate into existing policies;<sup>32</sup>
- The Assistant Secretary of Defense for Acquisition is to oversee integration of climate change considerations, including life-cycle analyses, into acquiring or modifying weapon systems, platforms, equipment, and products, in accordance with DOD Directive 5000.01 and DOD Instruction 5000.02;
- The Assistant Secretary of Defense for Acquisition is to develop or update policies to integrate climate change considerations into

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<sup>30</sup>See, e.g., DOD Directive 5000.01, *The Defense Acquisition System* (May 12, 2003) (incorporating change 2, Aug. 31, 2018); DOD Instruction 5000.02T, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating change 6, Jan. 23, 2020); DOD Instruction 5000.02, *Operation of the Adaptive Acquisition Framework* (Jan. 23, 2020); DOD Instruction 5000.60, *Defense Industrial Base Assessments* (July 18, 2014) (incorporating change 2, Aug. 31, 2018); DOD Instruction 5000.74, *Defense Acquisition of Services* (Jan. 10, 2020); DOD Instruction 4140.01, *DOD Supply Chain Materiel Management Policy* (Mar. 6, 2019).

<sup>31</sup>Relevant military department-level guidance includes Army Regulation 70-1, *Army Acquisition Policy* (Aug. 10, 2018); Air Force Instruction 63-101/20-101, *Integrated Life Cycle Management* (May 9, 2017); and Secretary of the Navy Instruction 5000.2F, *Defense Acquisition System and Joint Capabilities Integration and Development System Implementation* (Mar. 26, 2019).

<sup>32</sup>According to OUSD A&S officials, following a reorganization, the Office of the Assistant Secretary of Defense for Sustainment now carries out the functions of the former Office of the Assistant Secretary of Defense for Logistics and Materiel Readiness.

mission area analyses and acquisition strategies across the life cycle of weapon systems, platforms, and equipment, in accordance with DOD Directive 5000.01 and DOD Instruction 5000.02; and

- The military departments are to assess and manage vulnerabilities associated with climate change to acquisition and supply, including the full life cycle of weapon systems, platforms, equipment, and products within the respective department's portfolio, and integrate climate change considerations into their policy, guidance, plans, and operations.<sup>33</sup>

In January 2019, DOD officials provided a report to Congress that cited the effects of a changing climate as a national security issue with potential impacts to DOD missions.<sup>34</sup> Despite the potential disruptions to the provision of contracted goods and services from the effects of extreme weather and climate change, officials responsible for acquisition and supply in DOD told us they have not implemented the provisions of the department's climate change directive related to acquisition and supply processes, in part due to the directive being ambiguous and identifying only high-level requirements. Department officials stated that it was unclear to them how the directive, given its ambiguous nature, could be implemented. Specifically, neither DOD nor the military departments have updated their guidance to implement DOD's climate change directive regarding consideration of climate change risks in the acquisition and supply processes, both of which involve contracted goods and services.

We identified some opportunities that already exist to collect and use information and resources that could aid the department in determining how to implement the climate change directive. As outlined in our Disaster Resilience Framework, federal efforts can leverage the expertise and resources of nongovernmental partners to facilitate and promote resilience to natural disasters.<sup>35</sup> Our review of publicly available disclosures by leading DOD contractors showed that some contractors

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<sup>33</sup>DOD Directive 4715.21.

<sup>34</sup>Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report on Effects of a Changing Climate to the Department of Defense* (January 2019).

<sup>35</sup>GAO, *Disaster Resilience Framework: Principles for Analyzing Federal Efforts to Facilitate and Promote Resilience to Natural Disasters*, [GAO-20-100SP](#) (Washington, D.C.: October 2019).

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make climate-related disclosures in filings with the SEC.<sup>36</sup> In addition, some defense contractors disclose climate-related information in company sustainability reports and responses to climate change-related questionnaires from CDP, a non-profit organization that collects corporate climate-related information.<sup>37</sup> (See the sidebar on the following page for additional details of our review of these disclosures.)

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<sup>36</sup>Public companies are generally required to disclose, among other things, known trends, events, and uncertainties that are reasonably likely to have a material effect on the company's financial condition or operating performance through annual and other periodic filings with the Securities and Exchange Commission. These disclosures may include information on climate-related risks. In this context, "material" means that there is a substantial likelihood that a reasonable investor would attach importance in determining whether to buy or sell the securities registered.

<sup>37</sup>CDP was formerly known as the Carbon Disclosure Project.

**Climate-related Disclosures Made by Select DOD Contractors**

Filings with the SEC

Our review of available annual filings from 17 of the 20 largest DOD contractors showed that 15 had disclosed climate-related risks to operations as part of their filings. For example;

- One company noted that it has significant operations in areas prone to natural hazards.
- Another company stated that its business is subject to disruption caused by natural disasters because of operations located in regions that may be exposed to hurricanes, forest fires, and other natural disasters.
- Several companies made disclosures regarding risks to their business operations, such as the potential for failure to meet contractual schedules and performance requirements due to the effects of weather conditions or environmental hazards, among other disruptions.

Sustainability Reports

Our review of the 20 largest DOD contractors (by 2018 fiscal obligations) found that 11 of 19 published reports had included information on risks to operations or facilities. For example;

- One company stated that it had identified environmental risks to its operations and products, including energy conservation and water management, among others.
- Another company identified downstream flooding exacerbated by increased rainfall events due to climate change as a key risk to some of its ongoing projects and operations.

CDP

We found that 12 of the 20 largest defense contractors responded to a CDP questionnaire that inquired about climate risks to business operations, among other things. Only 11 of these contractors received scores from CDP, indicating that some did not provide sufficient information, declined to participate, or did not reply to CDP regarding a request.

Source: GAO analysis of SEC, contractor, and CDP documents. | GAO-20-511

While the disclosures themselves are limited in scope and detail, in a group discussion, representatives of leading DOD contractors told us they take steps internally to track climate change and extreme weather risks to their own operations and supply chains. This information is therefore potentially available to DOD when considering risks to commercially provided goods and services as part of its acquisition and supply processes.

Until OUSD A&S and the military departments update their various guidance documents on the acquisition and supply processes to implement DOD’s climate change directive, DOD risks continuing to develop acquisition strategies, including life-cycle sustainment analyses, and managing its supply chains without consideration of climate-related risks that can disrupt acquisition and supply. Excluding climate change and extreme weather considerations will limit DOD’s ability to anticipate and manage climate-related risks faced by its contractors so as to build resilience into its processes, and it could jeopardize DOD’s ability to carry out its missions.

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## DOD Has Not Assessed Climate-Related Risks to Commercially Owned Facilities Supporting Key Missions as Part of Mission Assurance

DOD guidance requires consideration of climate-related risks as part of the mission assurance process when appropriate, but we found that the department has not assessed risks associated with climate change or extreme weather to commercially owned facilities deemed critical to supporting key missions as part of this process. DOD installations may rely on support infrastructure, such as utilities, outside the installation, and commercial companies can provide essential materiel and services for DOD missions, such as providing components for and supporting weapon systems. DOD mission assurance officials told us that in the course of assessing risks to DOD’s own facilities, generally at the installation level, they take into account dependencies on commercially owned supporting infrastructure that directly supports the installations. DOD’s *Mission Assurance Assessment Benchmarks*, which provides guidelines for assessing risks to facilities, specifies that such supporting infrastructure be taken into account when assessing risks to DOD facilities. *Mission Assurance Assessment Benchmarks* also states that all-

hazard threat assessments consider a full range of known or estimated natural hazards and threats.<sup>38</sup>

Additional DOD guidance on all-hazard threat assessments lists meteorological hazards including tornadoes, tropical storms and hurricanes, storm surge, flood, damaging winds, drought, extreme temperatures, and impacts of climate change, among examples of hazards that should be considered when conducting this type of assessment.<sup>39</sup> Although DOD has not separately assessed risks to the commercial infrastructure, installation-level assessments can therefore acknowledge the vulnerabilities that the infrastructure can pose to the installation, including vulnerabilities from climate change and extreme weather-related events. From the identification of vulnerabilities, installation commanders can identify steps to mitigate or reduce the installation's dependency on the infrastructure, according to DOD officials involved in mission assurance. However, DOD mission assurance officials acknowledged that other critical commercial facilities, such as those that are part of the defense industrial base, are not necessarily captured in installation-level assessments.

The challenge of how to assess risks to key commercial facilities has been a longstanding issue for the department. In March 2012 the DOD Office of Inspector General reported that DOD could not determine the level of risk to non-government-owned facilities that support critical missions and therefore could not anticipate the level of risk to those missions because vulnerability and risk assessments and risk mitigation plans had not been completed.<sup>40</sup> The DOD Office of Inspector General recommended that DOD issue new guidance specific to the defense industrial base to define requirements and roles and responsibilities

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<sup>38</sup>The all-hazard threat assessment is also to include known or estimated technological and human-caused hazards and threats, including terrorist capabilities and possibilities of non-hostile incidents. Joint Chiefs of Staff, *2018 DOD Mission Assurance Assessment Benchmarks* (Mar. 28, 2018) (FOUO).

<sup>39</sup>See DOD Instruction 6055.17, *DOD Emergency Management (EM) Program* (Feb. 13, 2017) (change 3 effective June 12, 2019).

<sup>40</sup>DODIG-2012-064.

regarding non-government-owned critical facilities.<sup>41</sup> DOD subsequently included in its mission assurance instruction a section on non-DOD-owned assets, which can include facilities within the defense industrial base.<sup>42</sup>

That same year, DOD noted in its 2012 *Mission Assurance Strategy* that the department had paid inadequate attention to challenges outside of DOD-owned facilities, and that limited understanding of supply chain risks in the defense industrial base had been a pervasive problem for the department.<sup>43</sup> The strategy indicated that DOD must adopt a comprehensive mission assurance framework to manage risks in a way that accounts for the department's dependence on non-DOD owned facilities and the consequences of any disruptions to those facilities. According to the strategy, failing to do so can jeopardize mission execution and may lead to failure of the department's overall mission assurance strategy.<sup>44</sup>

However, officials in the Office of the Under Secretary of Defense for Policy, the Joint Staff, and DCMA told us that DOD has not conducted any assessments related to the mission assurance process—to include all-hazards threat assessments—associated with commercial facilities deemed critical to departmental missions, including any that are part of

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<sup>41</sup>DODIG-2012-064. The DOD Office of Inspector General recommended that the Under Secretary of Defense for Policy request that the Deputy Secretary of Defense amend a DOD directive on critical infrastructure to exclude the defense industrial base sector and create a DOD instruction for the defense industrial base sector that sets requirements for risk management of the non-government-owned critical assets and assigns appropriate roles and responsibilities. The DOD Office of Inspector General considered DOD Directive 3020.40, *Mission Assurance (MA)*, and DOD Instruction 3020.45, *Mission Assurance (MA) Construct*, to have met the intent of the recommendations and closed them as implemented.

<sup>42</sup>Based on this action, the DOD Office of Inspector General considered the recommendation implemented.

<sup>43</sup>Department of Defense, *Mission Assurance Strategy* (April 2012).

<sup>44</sup>Department of Defense *Mission Assurance Strategy* (April 2012). Specifically, the strategy states that threats to non-DOD government and commercially owned infrastructure, facilities, and capabilities—including the defense industrial base—can jeopardize DOD mission execution. It further states that a mission assurance strategy focused only on DOD-specific vulnerabilities is likely to fail.

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the defense industrial base.<sup>45</sup> These officials stated that DOD does not have the same ability to assess commercial facilities as it has to assess its own facilities. Specifically, the officials noted that DOD personnel do not always have access to commercially owned facilities, and that when they do have access, they may be subject to limitations on the information they can share from their assessments, such as proprietary information.<sup>46</sup>

DOD officials involved in mission assurance told us they are exploring alternative approaches to assessing and managing risks to commercial facilities, including identifying whether contracts can provide a vehicle for enabling such assessments. Another example of an alternative approach is the Energy Sector Pathfinder initiative, a joint effort begun in February 2020 among DOD, the Department of Energy, and the Department of Homeland Security that seeks to advance information sharing, improve understanding of systemic risks, and improve preparedness in the energy sector. However, the officials acknowledged that their efforts to explore alternative ways of assessing risks to commercial facilities as part of the mission assurance process are in the early stages and are something the department has not yet perfected. For example, to date the mission assurance work for the defense industrial base area has identified critical facilities, but it has not yet focused on assessing risks to those facilities. In addition, although DOD guidance on mission assurance indicates that officials may leverage assessments by the Department of Homeland Security for certain non-DOD-owned facilities, DOD mission assurance officials told us that information sharing with the Department of Homeland Security to date has been limited. DOD officials told us they are working to increase that information sharing.

DOD's mission assurance instruction issued in 2018 discusses the application of the risk assessment step to certain commercial facilities

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<sup>45</sup>The defense industrial base is the worldwide industrial complex that enables research and development, as well as design, production, delivery, and maintenance of military weapon systems, subsystems, and components or parts, to meet U.S. military requirements.

<sup>46</sup>Specifically, the officials stated that DOD does not presently have the authority to unilaterally conduct assessments of commercial facilities. Similarly, a related DOD Inspector General report noted that DOD does not have the authority to direct the owner of a non-government-owned critical asset to conduct a risk assessment, and that contractors were subject to these assessments on a voluntary basis. Department of Defense, Office of Inspector General Report No. DODIG-2012-064, *Vulnerability and Risk Assessments Needed to Protect Defense Industrial Base Critical Assets* (Mar. 13, 2012).

that have been identified as critical to supporting key missions.<sup>47</sup> The instruction establishes minimum requirements for the assessment step, including producing all-hazards threat assessments and leveraging assessments by the Department of Homeland Security, for certain non-DOD-owned critical facilities.<sup>48</sup> In addition, a 2018 instruction issued by DCMA indicates that it is DCMA policy to assess potential risk to DOD mission execution resulting from risks to the defense industrial base.<sup>49</sup>

However, DOD has not yet determined which approaches may be feasible to assess risks to commercially owned facilities, including climate-related risks, as part of the mission assurance process. It also has not used such a determination to identify specific procedures, given the different authorities and conditions that apply to these facilities. An official in DCMA's industrial analysis group, which conducts mission assurance activities for the defense industrial base, noted that DOD guidance on mission assurance is not clear as to how the mission assurance framework should be applied to commercially owned facilities. For example, the DOD instruction regarding the mission-assurance construct acknowledges that DOD components may be limited in their ability to conduct all mission-assurance phases for non-DOD-owned facilities, but it does not comprehensively address what specific limitations exist, explain what information may be available to mitigate them, or provide clear direction on how to do so. Similarly, the DCMA instruction on defense industrial base mission assurance includes risk assessment in its process steps, but it provides no additional guidance on how to work through the challenges that may arise in conducting such assessments, such as a limited ability to assess commercially owned facilities and obstacles to information sharing. DOD officials acknowledged that more work is needed to ensure the department consistently applies the mission assurance process to commercial

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<sup>47</sup>DOD Instruction 3020.45, para. 4.2.b. The guidance discusses application to assets, which the DOD instruction notes elsewhere may include people, facilities, physical objects, information systems or applications, or information. See *id.*, para. 3.3.a(3)(b).

<sup>48</sup>Specifically, the DOD instruction discusses assessments for commercial task critical assets. *Id.* para. 4.2.b. Task-critical assets, identified as part of the mission assurance process, are assets that are of such extraordinary importance that their incapacitation or destruction would have a serious, debilitating effect on the ability of one or more DOD or OSD components to execute the capability or mission-essential task they support. DOD Directive 3020.40, at 19.

<sup>49</sup>DCMA Instruction 3401, *Defense Industrial Base Mission Assurance*, para. 1.2.b (Aug. 29, 2018).



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facilities and to identify steps that should be taken with industry and other governmental partners once vulnerabilities are identified.

Without determining any approaches that may be feasible and updating or issuing guidance that more specifically addresses how to apply the mission assurance process to commercial facilities, DOD officials may not fully evaluate the risks to critical commercial facilities as part of the mission assurance process. As a result, DOD may not have a detailed understanding of the potential risks to its ability to fulfill key missions dependent on such facilities, to include disruptions caused by the effects of climate change and extreme weather, such as damage to commercial facilities and gaps in service due to delays or breakdowns in essential systems, such as transportation, water, and energy.

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## Conclusions

The U.S. Global Change Research Program's *Fourth National Climate Assessment* indicates that climate change is projected to have broad effects on multiple sectors that can affect contractor support and DOD supply chains, including disruptions to energy, water, and transportation systems. DOD has, in turn, acknowledged that the effects of climate change constitute a potential threat to its operations and missions. DOD has also issued guidance establishing policy and assigning responsibilities related to increasing its resilience to climate change, which includes provisions on incorporating climate change considerations into DOD's acquisition and supply processes, through which the department obtains the contracted goods and services necessary for its operations and missions.

However, DOD has not systematically incorporated consideration of climate change into its acquisition and supply processes, consequently limiting the military departments' ability to best consider the potential effects on their own operations from climate-related risks faced by their contractors as part of these processes. Specifically, DOD and the military departments have not updated their acquisition and supply guidance to outline how officials throughout DOD are to implement the provisions of DOD's climate change directive. Until DOD and the military departments implement DOD's climate change directive so as to clarify relevant guidance, DOD risks continuing to conduct acquisition analysis and planning, including the development of life-cycle sustainment analyses and plans, and managing its supply chains without consideration of climate-related risks that can disrupt acquisition and supply processes.

Excluding climate change and extreme weather considerations will limit DOD's ability to anticipate and manage climate-related risks so as to build resilience into its processes, and could jeopardize its ability to carry out its missions.

In addition, DOD has established a mission assurance process to ensure the continued function of capabilities and assets that support its missions. This process may include consideration of extreme weather events and the effects of climate change. However, DOD has not fully assessed risks to commercially owned facilities that support critical missions as part of its mission assurance process. Without better determining which actions DOD officials can take to assess commercially owned facilities and providing guidance that reflects that determination, DOD officials are likely to continue omitting commercial facilities from the risk assessment step of the mission assurance process. This omission poses a risk to the department that it will not be fully knowledgeable of or able to prepare for threats to facilities it relies on for key missions, including threats posed by climate change and extreme weather.

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## Recommendations for Executive Action

We are making the following six recommendations, including three to the Department of Defense and three to the military departments:

The Secretary of Defense should ensure that the Under Secretary of Defense for Acquisition and Sustainment implements DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant DOD guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Under Secretary of Defense for Acquisition and Sustainment should consider providing guidance as to how departmental officials may leverage already existing information regarding private companies. (Recommendation 1)

The Secretary of the Army should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Army guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Army should consider providing guidance as to how departmental officials may leverage already existing information regarding private companies. (Recommendation 2)

The Secretary of the Navy should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Navy guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Navy should consider providing guidance as to how departmental officials may leverage already existing information regarding private companies. (Recommendation 3)

The Secretary of the Air Force should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Air Force guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Air Force should consider providing guidance as to how departmental officials may leverage already existing information regarding private companies. (Recommendation 4)

The Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private-sector partners, as appropriate, determine what approaches may be feasible in conducting mission assurance related assessments of commercially owned facilities. (Recommendation 5)

The Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private-sector partners, as appropriate, issue new or update existing guidance, based upon the determination of what approaches may be feasible, to clarify the steps that DOD officials involved in the mission assurance process may take to apply the mission assurance framework to commercially owned facilities, as appropriate, to include consideration of risks related to climate change and extreme weather. (Recommendation 6)

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## Agency Comments and Our Evaluation

We provided a draft of this report for review and comment to DOD. In its written comments, reproduced in their entirety in appendix III, DOD concurred with three of our recommendations and partially concurred with

the other three. DOD also provided technical comments, which we incorporated as appropriate.

DOD partially concurred with our first recommendation that DOD update, as appropriate, relevant DOD guidance related to acquisition and supply processes to incorporate the provisions of DOD Directive 4715.21 on climate change adaptation and resilience pertaining to those processes. DOD stated that the Under Secretary of Defense for Acquisition and Sustainment would oversee updates to guidance relevant to its supply processes. DOD also stated that it will oversee updates to its acquisition policies when and if appropriate, but that its adaptive acquisition framework provides all necessary flexibility and that DOD does not expect the acquisition framework to require any updates.

We are encouraged that DOD plans to update its guidance related to supply processes to reflect the relevant provisions of its directive on climate change adaptation. However, as we note in our report, DOD's acquisition process does not systematically identify and consider climate-related risks to materiel acquisition and supply or to the acquisition of weapon systems more broadly, and DOD's acquisition guidance does not incorporate the acquisition-related provisions of DOD's climate change adaptation directive. For example, the directive requires the Assistant Secretary of Defense for Acquisition to develop or update policies to integrate climate change considerations into mission area analyses and acquisition strategies across the life cycle of weapon systems, platforms, and equipment, but our review found that this has not occurred. Therefore, we continue to believe that DOD should update relevant guidance related to both supply and acquisition processes to fully meet the intent of our recommendation.

DOD concurred with our second recommendation that the Army update, as appropriate, relevant Army guidance related to acquisition and supply processes to incorporate the provisions of DOD Directive 4715.21 on climate change adaptation and resilience pertaining to those processes. DOD stated that the Army would update, as appropriate, Army guidance related to acquisition and supply upon updates to DOD's climate adaptation directive and other applicable DOD or federal regulations. However, DOD officials during our review did not inform us of any plans to update Directive 4715.21, and DOD's written comments on our report likewise did not identify any such plans. In addition, the department states in its comment letter that it does not plan to update its acquisition guidance in response to our recommendation. Therefore, were the Army to update its guidance only in response to any updates to DOD guidance,

it might not fully implement our recommendation. We continue to believe that the Army should update its guidance, as appropriate, to incorporate the existing requirements in DOD Directive 4715.21, rather than wait for further updates to the DOD climate change directive or other DOD guidance before doing so.

DOD partially concurred with our third recommendation that the Department of the Navy update, as appropriate, relevant Department of the Navy guidance related to acquisition and supply processes to incorporate the provisions of DOD Directive 4715.21 on climate adaptation and resilience pertaining to those processes. DOD stated that according to the Department of the Navy, the recommendation should require the Department of the Navy to ensure that its guidance and procedures are updated to align with DOD's directive on climate adaptation upon issuance of an updated directive. We disagree with this proposed restatement. As noted above, DOD has not informed us of any plans to update its directive on climate change adaptation. Our recommendation is for the Department of the Navy to update its guidance related to acquisition and supply to incorporate the current guidance in DOD's climate adaptation directive, which our report notes it has not done. We continue to believe the Department of the Navy should implement our recommendation as originally stated.

DOD concurred with our fourth recommendation that the Air Force update, as appropriate, relevant Air Force guidance related to acquisition and supply processes to incorporate the provisions of DOD Directive 4715.21 on climate adaptation and resilience pertaining to those processes. DOD stated that the Air Force concurs with the recommendation and will work with the Office of the Under Secretary of Defense for Acquisition and Sustainment and the other military services to develop specific policies that address climate risk to DOD contractors.

DOD concurred with our fifth recommendation that the Under Secretary of Defense for Policy, in coordination with other DOD, governmental, and private-sector entities, as appropriate, determine what approaches may be feasible in conducting mission assurance-related assessments of commercially owned facilities. DOD stated that the Office of the Under Secretary of Defense for Policy is working with the Defense Contract Management Agency's Industrial Analysis Group to better understand DOD's commercial dependencies.

DOD partially concurred with our sixth recommendation that the Under Secretary of Defense for Policy, in coordination with other DOD,

governmental, and private-sector entities, as appropriate, issue new or updated guidance to clarify the steps DOD officials may take to apply the mission assurance framework to commercially owned facilities, as appropriate, to include risks related to climate change and extreme weather. DOD stated that it concurs with the need to clarify steps that officials may take to apply the mission assurance framework to defense critical infrastructure and critical defense industrial base commercially owned facilities, to include consideration of risks related to climate change and extreme weather.

DOD stated that it does not concur with doing this for all commercial facilities because conducting such assessments for all commercially owned facilities falls outside the capacity and authority of DOD to conduct mission assurance assessments. However, we did not recommend that DOD apply this process to all commercially owned facilities. As we stated in our report, DOD has not assessed risks associated with climate change or extreme weather to those commercially owned facilities that have been deemed critical to supporting key missions. Because DOD's mission assurance instruction discusses the application of the risk assessment step to certain commercial facilities that have been identified as critical to supporting key missions and establishes minimum requirements for the assessment step, we continue to believe that DOD should issue new guidance or update existing guidance to clarify the steps that officials may take to apply the mission assurance framework to commercially owned facilities, as appropriate. DOD further stated that it is working with the Defense Contract Management Agency to develop a methodology, the authority, funding, and training to be able to assess defense industrial base critical assets and select commercial assets identified as critical. We are encouraged by these actions and hope that DOD will use them as a basis to implement our recommendation.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of the report to the appropriate congressional committees; the Secretary of Defense; the Under Secretary of Defense for Policy; the Under Secretary of Defense for Acquisition and Sustainment; and the Secretaries of the Departments of the Army, Navy, and Air Force. In addition, this report will be available at no charge on the GAO website at [www.gao.gov](http://www.gao.gov).

If you or your staff have any questions about this report, please contact me at (202) 512-2775 or at [field1@gao.gov](mailto:field1@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on

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the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.



Elizabeth A. Field, Director  
Defense Capabilities and Management

# Appendix I: Objectives, Scope, and Methodology

This report examines the extent to which the Department of Defense (DOD) assesses the potential effects on its operations from climate change and extreme weather risks faced by its contractors through the department's (1) acquisition and supply processes, and (2) mission assurance process. It also includes an appendix on consideration of climate-related risks and other environmental issues in defense contracting.

For objective one, we reviewed DOD and military guidance on acquisition and supply to determine the extent to which the guidance included consideration of climate change or extreme weather.<sup>1</sup> We also reviewed the Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) to determine the extent to which they included provisions related to identification or assessment of climate-related risk. We interviewed officials involved in acquisition and supply in the Office of the Under Secretary of Defense for Acquisition and Sustainment, the Defense Logistics Agency, and contracting policy offices in the military departments to discuss the extent to which climate change and extreme weather considerations have been incorporated in their acquisition and supply processes. We reviewed DOD Directive 4715.21, which provides DOD guidance on climate change adaptation and resilience, to determine the extent to which it included provisions related to identification or assessment of climate-related risks in DOD processes through which the department obtains the contracted goods and services

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<sup>1</sup>For example, we reviewed DOD Directive 5000.01, *The Defense Acquisition System* (May 12, 2003) (incorporating change 2, Aug. 31, 2018); DOD Instruction 5000.02T, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating change 6, Jan. 23, 2020); DOD Instruction 5000.02, *Operation of the Adaptive Acquisition Framework* (Jan. 23, 2020); DOD Instruction 5000.66, *Defense Acquisition Workforce Education, Training, Experience, and Career Development Program* (July 27, 2017) (change 2 effective Sept. 13, 2019); DOD Instruction 5000.60, *Defense Industrial Base Assessments* (July 18, 2014) (incorporating change 2, Aug. 31, 2018); DOD Instruction 5000.74, *Defense Acquisition of Services* (Jan. 10, 2020); DOD Instruction 4140.01, *DOD Supply Chain Materiel Management Policy* (Mar. 6, 2019); Army Regulation 70-1, *Army Acquisition Policy* (Aug. 10, 2018); Air Force Instruction 63-101/20-101, *Integrated Life Cycle Management* (May 9, 2017); and Secretary of the Navy Instruction 5000.2F, *Defense Acquisition System and Joint Capabilities Integration and Development System Implementation* (Mar. 26, 2019).



necessary for its operations and missions, such as acquisition and supply. We compared the extent to which DOD had assessed potential climate-related risks to its contractors with the provisions of the climate change adaptation and resilience guidance. Specifically, we used our review of the DOD and military department guidance on acquisition and supply, and the statements of the officials involved in acquisition and supply, to determine the extent to which the department has implemented the DOD directive regarding climate change resilience and adaptation.

To determine what opportunities exist to collect and use information and resources that could aid DOD in determining how to implement its climate change guidance, we reviewed publicly available documents relating to the top 20 DOD contractors by fiscal year 2018 dollar volume of contracts to identify any publicly available disclosures related to climate change and extreme weather risks.<sup>2</sup> Specifically, we reviewed Form 10-K annual reports filed with the Securities and Exchange Commission (SEC), sustainability reports, and information on company responses to surveys from CDP, a non-profit organization that collects company climate-related information, to assess what information related to risks from climate change and extreme weather contractors disclose.

We also met with representatives of four of the top five defense contractors by dollar volume of DOD contracts in fiscal year 2018, the most recent full year of data available at the time we began our review, to discuss the extent to which the contractors identified climate-related risks to their operations and the extent to which they shared that information with DOD. We selected the largest DOD contractors based on the scope and range of their work for DOD. Representatives from one of the five contractors were unable to attend the meeting with the others but provided us with written comments. We also met with industry organizations representing DOD contractors, including the Aerospace Industries Association, National Defense Industrial Association, and Professional Services Council, to discuss the extent to which they were aware of industry actions to assess and respond to climate risks.

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<sup>2</sup>To identify the largest DOD contractors by dollar volume of contracts, we used data from the Federal Procurement Data System-Next Generation (FPDS-NG), the federal government's central repository for contracting data. We analyzed procurement data from the 20 largest defense contractors in FPDS-NG relevant to DOD's contracted goods and services, such as contract value and the volume of dollars obligated.

For objective two, we focused on DOD's actions to assess risk to commercial facilities that provide contracted goods or services to DOD. We reviewed DOD guidance on the department's mission assurance process to determine the extent to which the mission assurance process included consideration of climate change and extreme weather risks.<sup>3</sup> To determine the extent to which DOD had conducted mission assurance-related assessments of commercially owned facilities, including whether any such assessments included consideration of climate change and extreme weather risks, we requested any assessments related to mission assurance for commercially owned facilities deemed critical to supporting key departmental missions, which DOD was unable to provide because it had not conducted such assessments. We interviewed officials involved in mission assurance at the Office of the Under Secretary of Defense for Policy, the Office of the Under Secretary of Defense for Acquisition and Sustainment, the Joint Staff, the Defense Contract Management Agency (DCMA), and the military departments to discuss what efforts, if any, they take to include consideration of climate change and extreme weather risks in mission assurance-related assessments. We also discussed the extent to which mission assurance-related assessments have been conducted for commercially owned facilities, as well as any challenges or limitations in DOD's ability to conduct such assessments. We compared that information with the guidance related to assessing non-DOD-owned facilities identified as critical to key DOD missions as outlined in DOD's and DCMA's mission assurance guidance.

To develop the appendix on consideration of climate-related risks and other environmental issues in defense contracting, we reviewed the FAR and DFARS to determine the extent to which these regulations included provisions related to the consideration of climate risks to contractors as part of the contracting process. We also reviewed the FAR and DFARS to identify any provisions relevant to the consideration of contractors' efforts to reduce greenhouse gas emissions, improve energy efficiencies, and comply with environmental laws and regulations. We interviewed officials involved in contracting and acquisition policy in the Office of the Under Secretary of Defense for Acquisition and Sustainment's Office of Defense Pricing and Contracting and military department officials involved in

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<sup>3</sup>Specifically, we reviewed DOD, *Mission Assurance Strategy* (April 2012); DOD Directive 3020.40, *Mission Assurance (MA)* (Nov. 29, 2016) (change 1 effective Sept. 11, 2018); DOD Instruction 3020.45, *Mission Assurance (MA) Construct* (Aug. 14, 2018); DOD Instruction 6055.17, *DOD Emergency Management (EM) Program* (Feb. 13, 2017) (change 3 effective June 12, 2019); Joint Chiefs of Staff, *2018 DOD Mission Assurance Assessment Benchmarks* (Mar. 28, 2018) (FOUO); and Defense Contract Management Agency Instruction 3401, *Defense Industrial Base Mission Assurance* (Aug. 29, 2018).

contracting policy to discuss the extent to which provisions related to climate-related risks were incorporated into DOD contracts. We also met with representatives of the DOD contractors identified above to discuss the extent to which requirements related to climate-related risks were incorporated into DOD contracts, and we obtained written comments from the fifth contractor.

We conducted this performance audit from June 2019 to June 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

# Appendix II: Consideration of Climate-Related Risks and Other Environmental Issues in Defense Contracting

The Federal Acquisition Regulation (FAR) and the Defense Federal Acquisition Regulation Supplement (DFARS) govern planning for, soliciting offers for, and management of contracts for goods and services. These contracting regulations do not specifically require that the Department of Defense (DOD) assess risks to its contractors from climate change or extreme weather, but they do include provisions that may account for the possibility of disruptions related to climate change or extreme weather. For example, as explained below, the DFARS contains provisions related to contractors developing plans associated with the continued performance of designated essential contractor services during a crisis.<sup>1</sup> Table 1 contains some FAR and DFARS provisions related to potential weather and other risks.

**Table 1: Relevant Content from Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) Provisions Related to Potential Weather and Other Risks**

Relevant FAR provisions	Relevant content
Default (Fixed-Price Supply and Service)	Clause 52.249-8(c), to be used in solicitations and contracts for fixed-price supply and service contracts above the simplified acquisition threshold, provides that, in the context of a termination for default, the contractor shall not be liable for excess costs if the failure to perform the contract arises from causes beyond the control and without the fault or negligence of the contractor. The list of examples of such causes includes, among other things: fires, floods, and unusually severe weather. In each instance the failure to perform must be beyond the control and without the fault or negligence of the contractor.
Default (Fixed-Price Construction)	Clause 52.249-10(b), to be used in solicitations and contracts for fixed-price construction contracts above the simplified acquisition threshold, provides that the contractor's right to proceed with the contract will not be terminated and the contractor will not be charged with damages for default if delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the contractor. The list of examples of such causes includes, among other things: fires, floods, and unusually severe weather, provided the contractor notifies the contracting officer.

<sup>1</sup>See Defense Federal Acquisition Regulation Supplement (DFARS), 48 C.F.R. §§ 252.237-7023, 252.237-7024 (2019).

**Appendix II: Consideration of Climate-Related Risks and Other Environmental Issues in Defense Contracting**

Relevant DFARS provision	Relevant content
Continuation of Essential Contractor Services	<p>Subpart 237.76 of the DFARS prescribes procedures for the acquisition of essential contractor services that support mission-essential functions and requires the use of clauses in solicitations and contracts for services in support of mission-essential functions.</p> <p>Solicitation Clause 252.237-7024, Notice of Continuation of Essential Contractor Services, requires the offeror to provide with its offer a written plan describing how it will continue to perform the essential contractor services listed in an attachment to the solicitation during periods of crisis. Among other things, the contractor is to identify provisions made for the acquisition of essential personnel and resources, if necessary, for continuity of operations for up to 30 days or until normal operations can be resumed, and to address challenges associated with maintaining essential contractor services during an extended event.</p> <p>Contract Clause 252.237-7023, Continuation of Essential Contractor Services, provides for incorporation into the contract of the Mission-Essential Contractor Services Plan submitted by the contractor. It further provides that the contractor is responsible for performing the services identified as essential contractor services during crisis situations, as directed by the contracting officer, in accordance with the plan, and to notify the government in the event it anticipates being unable to perform. The clause includes a process for the contractor to propose an equitable adjustment to the contract price, delivery schedule, or both.</p>

Source: GAO review of the Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement. | GAO-20-511

As shown in the table, for certain solicitations and contracts, DOD may require that prospective contractors who will provide mission-essential contractor services develop a plan to continue performance of the contract during periods of crisis. Specifically, a DFARS provision provides for the inclusion of certain clauses in solicitations and contracts to require contractors who provide services identified by DOD as essential contractor services to submit, maintain, and update as necessary a plan to ensure that the contractor is able to continue performance in the event of a crisis, or notify the contracting officer or other designated representative if the contractor cannot continue to perform.<sup>2</sup>

According to an official in the Office of the Under Secretary of Defense for Acquisition and Sustainment’s (OUSD A&S) office of Defense Pricing and Contracting, in 2015 an estimated 2,072 offerors submitted a plan in response to a relevant solicitation, and 518 contract awardees had such a

<sup>2</sup>See DFARS §§ 237.602, 252.237-7023, 252.237-7024. The DFARS defines essential contractor services as services provided by a firm or individual under contract to DOD to support mission-essential functions, and provides certain examples. It further notes that services are essential if the effectiveness of defense systems or operations has the potential to be seriously impaired by interruption, as determined by the appropriate functional commander or civilian equivalent. Mission-essential functions are those organizational activities that must be performed under all circumstances to achieve DOD component missions or responsibilities, as determined by the appropriate functional commander or civilian equivalent. Failure to perform or sustain these functions would significantly affect DOD’s ability to provide vital services or exercise authority, direction, and control. DFARS § 252.237-7023(a). The government identifies the essential contractor services as part of an attachment to the solicitation and contract.

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**Appendix II: Consideration of Climate-Related Risks and Other Environmental Issues in Defense Contracting**

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plan in response to a relevant contract.<sup>3</sup> The official also stated that mission-essential contractor services plans can play a role in the solicitation of a contract. Specifically, if a contractor fails to provide an adequate plan, the offer may not be successful. Additionally, according to the official, in the event that a sole-source provider fails to provide an adequate plan, further negotiations may take place to develop an appropriate plan before the contract is awarded.

In light of threats to continuity of operations from natural disasters and severe weather, among other crisis situations, in 2020 the Acting Principal Director of Defense Pricing and Contracting in OUSD A&S issued a memorandum reminding contracting officers to make use of these mission-essential contractor services provisions.<sup>4</sup> Navy officials involved in acquisition and contracting policy told us that they typically require contractors at shipyards to have a similar plan for extreme weather, such as a storm, hurricane, or other natural hazard, in place before certain contracts are awarded.

The FAR also provides for some consideration of environmental issues, such as energy efficiencies, greenhouse gas emissions, and compliance with environmental laws and regulations. For example, the FAR includes provisions promoting the acquisition of environmentally preferable and sustainable products and services—for example, energy-efficiency services and products, and non-ozone depleting substances. Moreover, the FAR provides for the use in certain contracts of clauses requiring contractors to use energy-efficient products and to reduce the use or release of high global warming potential hydrofluorocarbons when performing under the contract. Table 2 shows select excerpts from the FAR related to energy efficiencies, greenhouse gas emissions, and compliance with environmental laws and regulations.

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<sup>3</sup>2015 was the most recent year for which such data were available, according to the OUSD A&S official.

<sup>4</sup>Acting Principal Director of Defense Pricing and Contracting Memorandum, *Continuation of Essential Contractor Services* (Mar. 5, 2020).

**Appendix II: Consideration of Climate-Related Risks and Other Environmental Issues in Defense Contracting**

**Table 2: Relevant Content from Federal Acquisition Regulation (FAR) Provisions Related to Energy Efficiencies, Greenhouse Gas Emissions, and Environmental Compliance**

Subject	Relevant content
Energy Efficiency	<p>Section 23.703- “Agencies must . . . implement cost-effective contracting preference programs promoting energy-efficiency . . . and the acquisition of environmentally preferable products and services.”</p> <p>Clause 52.223-15(b), to be used in solicitations and contracts when certain energy-consuming products are involved- “The Contractor shall ensure that energy-consuming products are energy-efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are- (1) Delivered; (2) Acquired by the Contractor for use in performing services at a Federally controlled facility; (3); Furnished by the Contractor for use by the Government; or (4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.”</p>
Weather	<p>Clause 52.236-3, to be used in the context of certain fixed price construction contracts — “The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site...”</p> <p>Clause 52.236-4, to be used in the context of fixed price construction contracts when physical data (for example, test borings, hydrographic data, weather conditions data) will be furnished or made available to offerors—the clause includes a field for “weather conditions” where, as applicable, the contracting officer would include a summary of weather records and warnings.</p>
Ozone, Global Warming, and Greenhouse Gas	<p>Section 23.103- “Federal agencies shall advance sustainable acquisition by ensuring that 95 percent of new contract actions for the supply of products and for the acquisition of services (including construction) require that the products are – (1) Energy-efficient . . . ; (2) Water-efficient; (3) Biobased; (4) Environmentally preferable . . . ; (5) Non-ozone depleting; or (6) Made with recovered materials.”</p> <p>Clause 52.223-22, included when certain other clauses are used and to be completed by offerors that received \$7.5 million or more in federal contract awards in the prior fiscal year (optional for those who received less)—requires the offeror to identify whether or not it publicly discloses greenhouse gas emissions and an emissions reduction goal on a publicly accessible web site.</p>
Environmental Compliance	<p>Section 7.103(p), in the context of acquisition planning, requires agency heads to prescribe procedures ensuring that agency planners-</p> <p>...</p> <p>(2) “Comply with the policy in 11.002(d) regarding procurement of biobased products, products containing recovered materials, environmentally preferable products and services (including Electronic Product Environmental Assessment Tool (EPEAT®)-registered electronic products, nontoxic or low-toxic alternatives), ENERGY STAR® and Federal Energy Management Program-designated products, renewable energy, water-efficient products, non-ozone-depleting products, and products and services that minimize or eliminate, when feasible, the use, release, or emission of high global warming potential hydrofluorocarbons, such as by using reclaimed instead of virgin hydrofluorocarbons.”</p> <p>...</p> <p>(4) “Require contractor compliance with Federal environmental requirements, when the contractor is operating Government-owned facilities or vehicles, to the same extent as the agency would be required to comply if the agency operated the facilities or vehicles.”</p> <p>Section 11.002(d), identifying policy for acquisition planning, notes that—</p>

**Appendix II: Consideration of Climate-Related Risks and Other Environmental Issues in Defense Contracting**

Subject	Relevant content
	<p>(1) When agencies acquire products and services, various statutes and executive orders require consideration of sustainable acquisition including-</p> <ul style="list-style-type: none"> <li>(i) Energy-efficient and water-efficient services and products (including products containing energy-efficient standby power devices);</li> <li>(ii) Products and services that utilize renewable energy technologies;</li> <li>(iii) Products containing recovered materials;</li> <li>(iv) Biobased products;</li> <li>(v) Environmentally preferable products and services, including EPEAT®-registered electronic products and non-toxic or low-toxic alternatives; and</li> <li>(vi) Non-ozone-depleting substances, and products and services that minimize or eliminate, when feasible, the use, release, or emission of high global warming potential hydrofluorocarbons, such as by using reclaimed instead of virgin hydrofluorocarbons. (internal references omitted).</li> </ul> <p>Section 42.302(a), listing functions normally delegated by a contracting officer to a contract administration office, includes the function of monitoring the contractor’s environmental practices for adverse impact on contract performance or contract cost, and for compliance with environmental requirements specified in the contract.</p> <p>Clause 52.223-12, to be used in solicitations and contracts that include maintenance, service, repair, or disposal of refrigeration equipment or air conditioners—among other things, requires the contractor to comply with applicable requirements of the Clean Air Act.</p>

Source: GAO review of the Federal Acquisition Regulation. | GAO-20-511

According to OUSD A&S officials and DOD contractor representatives with whom we spoke or from whom we obtained written comments, environmental considerations are generally not used as a key criterion in the selection of a particular offer because such considerations would distract from the main purpose of the solicitation. However, a senior OUSD A&S official and contractor representatives noted that a contractor’s history of environmental compliance could be relevant as part of a responsibility determination when evaluating prospective contractors.<sup>5</sup>

<sup>5</sup>The FAR provides that purchases shall be made from, and contracts shall be awarded to, responsible prospective contractors only. Furthermore, no purchase or award may be made unless the contracting officer makes an affirmative determination of responsibility. FAR § 9.103(a), (b). To be determined responsible, a prospective contractor must, among other things, have a satisfactory performance record, have a satisfactory record of integrity and business ethics, and be otherwise qualified and eligible to receive an award under applicable laws and regulations. § 9.104-1. Special standards may be developed for a particular acquisition or class of acquisitions. § 9.104-2(a).



# Appendix III: Comments from the Department of Defense



ASSISTANT SECRETARY OF DEFENSE  
3500 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3500

1 June 2020

SUSTAINMENT

Ms. Elizabeth Field  
Director, Defense Capabilities Management  
U.S. Government Accountability Office  
441 G Street, NW  
Washington DC 20548

Dear Ms. Field,

This is the Department of Defense (DoD) response to the GAO Draft Report GAO-20-511SU, "CLIMATE RESILIENCE: Actions Needed to Ensure DOD Considers Climate Risks to Contractors as Part of Acquisition, Supply, and Risk Assessment," dated April 16, 2020 (GAO Code 103616). Thank you for the opportunity to respond to this report. Of the six GAO recommendations, we concur without comment with three, partially concur with two, and concur with comment on one. We have also provided technical edits for your consideration.

We concur with comment and partially concur on recommendations 1-4. The Department of Navy partially concurs with recommendation 3 and suggests revising to "The GAO recommends that upon issuance of an updated DoD Directive 4715.21, the Department of the Navy will ensure its guidance and procedures are aligned with the DoD promulgation."

As to recommendation 5, we understand GAO's task was to review potential threats to national security from the effects of climate change on defense contractors. This draft report instead examines the extent to which DoD assesses the potential effects on its operations. We believe that industry is best postured to answer the specific question.

We partially concur with recommendation 6. With the expansion of the original scope of the report to include mission assurance (MA) assessments as prescribed in DoDI 3020.45, "MA Construct," "all commercially owned facilities" falls outside the capacity and authority of DoD to conduct MA assessments. While MA efforts are important, they are limited by design to focus only on DoD's most critical capabilities.

Attached is DoD's proposed response to the subject report. We have completed the sensitivity review and confirmed there is no sensitive information in the draft report. My point of contact is Ms. Marissa McInnis, who can be reached at [marissa.k.mcinnis.civ@mail.mil](mailto:marissa.k.mcinnis.civ@mail.mil) and phone 571-372-5001.

Sincerely,

W. Jordan Gillis

Attachments: As stated

**GAO DRAFT REPORT DATED APRIL 16, 2020  
GAO-20-511SU (GAO CODE 103616)**

**“CLIMATE RESILIENCE: ACTIONS NEEDED TO ENSURE DOD CONSIDERS  
CLIMATE RISKS TO CONTRACTORS AS PART OF ACQUISITION, SUPPLY, AND  
RISK ASSESSMENT”**

**DEPARTMENT OF DEFENSE COMMENTS  
TO THE GAO RECOMMENDATION**

**RECOMMENDATION 1:** The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Acquisition and Sustainment implements DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant DOD guidance related to acquisition and supply processes to incorporate the directive’s provisions pertaining to those processes. In doing so, the Under Secretary of Defense for Acquisition and Sustainment should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE:** Partially Concur. The Under Secretary of Defense for Acquisition and Sustainment will oversee updates to relevant DoD guidance related to supply processes to implement DoD Directive 4715.21. The relevant DoD guidance includes DoDM 4140.01, Volumes 1, 2, 3, 7, and 9, and DoDI 4245.AA. We anticipate these updates to be complete by May 31, 2021. The Under Secretary of Defense for Acquisition and Sustainment will also ensure updates are made to the appropriate Acquisition Policies when and if appropriate. Currently, the Adaptive Acquisition Framework provides all the necessary flexibility required and is not expected to need any updates.

**RECOMMENDATION 2:** The GAO recommends that the Secretary of the Army should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Army guidance related to acquisition and supply processes to incorporate the directive’s provisions pertaining to those processes. In doing so, the Secretary of the Army should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE:** Concur with comment. The Army will update, as appropriate, Army guidance related to acquisition and supply processes upon updates to DoD Directive 4715.21 and other applicable DoD or Federal regulations. For example, changes to higher level procurement regulations or policies will be communicated by the Office of the DASA(P) to Army contracting personnel. The Office of the DASA(P) will also analyze the changes for any Army-level implementation guidance.

**RECOMMENDATION 3:** The GAO recommends that the Secretary of the Navy should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as

appropriate, relevant Department of the Navy guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Navy should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE:** Partially Concur. The DON recommends that the recommendation be restated as: "The GAO recommends that upon issuance of an updated DoD Directive 4715.21, the Department of the Navy will ensure its guidance and procedures are aligned with the DoD promulgation."

**RECOMMENDATION 4:** The GAO recommends that the Secretary of the Air Force should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Air Force guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Air Force should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE:** Concur. Air Force concurs with the recommendation and will work with the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) and the remaining Services to develop specific policies that addresses climate related risk to DoD contractors.

**RECOMMENDATION 5:** The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private sector partners, as appropriate, determine what approaches may be feasible in conducting mission assurance related assessments of commercially owned facilities.

**DOD RESPONSE:** Concur. Formal Mission Assurance (MA) Assessments are limited in scope to provide additional rigor to protecting DoD's most critical capabilities. They do not provide a cross-departmental, standardized fix to GAO's questions. However, Mission Assurance Assessments do prioritize engagement on what is the most important based on DoD's most critical capabilities. In this context, OUSD(P) is working with the Office of Under Secretary of Defense for Acquisition and Sustainment's Defense Contract Management Agency (DCMA) Industrial Analysis Group (IAG) to better understand DoD's commercial dependencies.

**RECOMMENDATION 6:** The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private sector partners, as appropriate, issue new or update existing guidance, based upon the determination of what approaches may be feasible, to clarify the steps that DOD officials involved in the mission assurance process may take to apply the mission

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**Appendix III: Comments from the Department of Defense**

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assurance framework to commercially owned facilities, as appropriate, to include consideration of risks related to climate change and extreme weather.

**DoD RESPONSE:** Partially concur. DoD concurs with the need to clarify the steps that officials involved in the mission assurance process may take to apply the mission assurance framework to *Defense Critical Infrastructure and critical Defense Industrial Base* commercially owned facilities to include consideration of risks related to climate change and extreme weather. DoD does not concur with doing this for all commercially owned facilities. With the expansion of the original scope of the report to include mission assurance (MA) assessments as prescribed in DoDI 3020.45, “MA Construct,” “all commercially owned facilities” falls outside the capacity and authority of DoD to conduct MA assessments. We are working with DCMA to develop a methodology, the authority, funding, and training to be able to assess Defense Industrial Base (DIB) critical assets and select commercial assets that are rated as critical by mission and asset owners. Note, however, MA-related non-DoD owned facilities are a very small fraction of the approximately 100,000 defense contractor companies and their sub-contractors. While these few MA-related companies are very important to execution of defense critical missions, increasing the security and resilience of MA-related DIB companies should not be conflated with addressing potential threats to the broad scope of national security from the effects of climate change. While MA efforts are important, they are limited by design to focus only on DoD’s most critical capabilities.

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## Text of Appendix III: Comments from the Department of Defense

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Page 1

Ms. Elizabeth Field

Director, Defense Capabilities Management

U.S. Government Accountability Office 441 G Street, NW

Washington DC 20548 Dear Ms. Field,

This is the Department of Defense (DoD) response to the GAO Draft Report GAO-20-511, 'CLIMATE RESILIENCE: Actions Needed to Ensure DOD Considers

Climate Risks to Contractors as Part of Acquisition, Supply, and Risk Assessment,' dated April 16, 2020 (GAO Code 103616). Thank you for the opportunity to respond to this report. Of the six GAO recommendations, we concur without comment with three, partially concur with two, and concur with comment on one. We have also provided technical edits for your consideration.

We concur with comment and partially concur on recommendations 1-4. The Department of Navy partially concurs with recommendation 3 and suggests revising to "The GAO recommends that upon issuance of an updated DoD Directive 4715.21, the Department of the Navy will ensure its guidance and procedures are aligned with the DoD promulgation."

As to recommendation 5, we understand GAO's task was to review potential threats to national security from the effects of climate change on defense contractors. This draft report instead examines the extent to which DoD assesses the potential effects on its operations. We believe that industry is best postured to answer the specific question.

We partially concur with recommendation 6. With the expansion of the original scope of the report to include mission assurance (MA) assessments as prescribed in DoDI 3020.45, 'MA Construct,' "all commercially owned facilities" falls outside the capacity and authority of DoD to conduct MA assessments. While MA efforts are important, they are limited by design to focus only on DoD's most critical capabilities.

Attached is DoD' s proposed response to the subject report. We have completed the sensitivity review and confirmed there is no sensitive information in the draft report. My point of contact is Ms. Marissa Mcinnis, who can be reached at marissa.k.mcinnis.civ(ci),mail.mil and phone 571-372-5001.

Sincerely ,

W. Jordan Gillis

Attachments: As stated

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## Page 2

GAO DRAFT REPORT DATED APRIL 16, 2020 GAO-20-511SU (GAO CODE 103616) "CLIMATE RESILIENCE: ACTIONS NEEDED TO ENSURE DOD CONSIDERS CLIMATE RISKS TO CONTRACTORS AS PART OF ACQUISITION, SUPPLY, AND RISK ASSESSMENT"

### DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

#### **RECOMMENDATION 1:**

The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Acquisition and Sustainment implements DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant DOD guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Under Secretary of Defense for Acquisition and Sustainment should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

#### **DoD RESPONSE: Partially Concur.**

The Under Secretary of Defense for Acquisition and Sustainment will oversee updates to relevant DoD guidance related to supply processes to implement DoD Directive 4715.21. The relevant DoD guidance includes DoDM 4140.01, Volumes 1, 2, 3, 7, and 9, and DoDI 4245.AA. We anticipate these updates to be complete by May 31, 2021. The Under Secretary of Defense for Acquisition and Sustainment will also ensure updates are made to the appropriate Acquisition Policies when and if appropriate.

Currently, the Adaptive Acquisition Framework provides all the necessary flexibility required and is not expected to need any updates.

**RECOMMENDATION 2:**

The GAO recommends that the Secretary of the Army should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Army guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Army should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE:**

Concur with comment. The Army will update, as appropriate, Army guidance related to acquisition and supply processes upon updates to DoD Directive 4715.21 and other applicable DoD or Federal regulations. For example, changes to higher level procurement regulations or policies will be communicated by the Office of the DASA(P) to Army contracting personnel. The Office of the DASA(P) will also analyze the changes for any Army-level implementation guidance.

**RECOMMENDATION 3:**

The GAO recommends that the Secretary of the Navy should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as

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appropriate, relevant Department of the Navy guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Navy should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE: Partially Concur.**

The DON recommends that the recommendation be restated as: "The GAO recommends that upon issuance of an updated DoD Directive 4715.21, the Department of the Navy will ensure its guidance and procedures are aligned with the DoD promulgation."

**RECOMMENDATION 4:**

The GAO recommends that the Secretary of the Air Force should implement DOD Directive 4715.21 on climate change adaptation and resilience by updating, as appropriate, relevant Department of the Air Force guidance related to acquisition and supply processes to incorporate the directive's provisions pertaining to those processes. In doing so, the Secretary of the Air Force should consider providing guidance as to how departmental officials may leverage already-existing information regarding private companies.

**DoD RESPONSE: Concur.**

Air Force concurs with the recommendation and will work with the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) and the remaining Services to develop specific policies that addresses climate related risk to DoD contractors.

**RECOMMENDATION 5:**

The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private sector partners, as appropriate, determine what approaches may be feasible in conducting mission assurance related assessments of commercially owned facilities.

**DOD RESPONSE: Concur.**

Formal Mission Assurance (MA) Assessments are limited in scope to provide additional rigor to protecting DoD's most critical capabilities. They do not provide a cross-departmental, standardized fix to GAO's questions. However, Mission Assurance Assessments do prioritize engagement on what is the most important based on DoD's most critical capabilities. In this context, OUSD(P) is working with the Office of Under Secretary of Defense for Acquisition and Sustainment's Defense Contract Management Agency (DCMA) Industrial Analysis Group (IAG) to better understand DoD's commercial dependencies.

**RECOMMENDATION 6:**

The GAO recommends that the Secretary of Defense should ensure that the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, the Secretaries of the military departments, and any other governmental and private sector partners, as appropriate, issue new or update



existing guidance, based upon the determination of what approaches may be feasible, to clarify the steps that DOD officials involved in the mission assurance process may take to apply the mission

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assurance framework to commercially owned facilities, as appropriate, to include consideration of risks related to climate change and extreme weather.

#### **DoD RESPONSE: Partially concur.**

DoD concurs with the need to clarify the steps that officials involved in the mission assurance process may take to apply the mission assurance framework to Defense Critical Infrastructure and critical Defense Industrial Base commercially owned facilities to include consideration of risks related to climate change and extreme weather. DoD does not concur with doing this for all commercially owned facilities. With the expansion of the original scope of the report to include mission assurance (MA) assessments as prescribed in DoDI 3020.45, "MA Construct," "all commercially owned facilities" falls outside the capacity and authority of DoD to conduct MA assessments. We are working with DCMA to develop a methodology, the authority, funding, and training to be able to assess Defense Industrial Base (DIB) critical assets and select commercial assets that are rated as critical by mission and asset owners. Note, however, MA-related non-DoD owned facilities are a very small fraction of the approximately 100,000 defense contractor companies and their sub-contractors. While these few MA-related companies are very important to execution of defense critical missions, increasing the security and resilience of MA-related DIB companies should not be conflated with addressing potential threats to the broad scope of national security from the effects of climate change. While MA efforts are important, they are limited by design to focus only on DoD's most critical capabilities.

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# Appendix IV: GAO Contact and Staff Acknowledgments

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## GAO Contact

Elizabeth A. Field, (202) 512-2775 or [fielde1@gao.gov](mailto:fielde1@gao.gov).

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## Staff Acknowledgments

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