

# Contested Primacy in the Western Pacific

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## China's Rise and the Future of U.S. Power Projection

No single issue is likely to have a more profound impact on the future of international relations than the evolving relationship between the United States and the People's Republic of China (PRC).<sup>1</sup> As Secretary of State Hillary Clinton observed before leaving office, Washington and Beijing "are trying to do something that has never been done in history," namely, "write a new answer to the question of what happens when an established power and a rising power meet."<sup>2</sup> Not only is China on rate to have the world's largest economy sometime in the next several decades, but it has also been reshaping its military at an impressive rate. Once a technologically underdeveloped organization preoccupied with continental defense against the former Soviet Union, the People's Liberation Army (PLA) is evolving into a modern force increasingly focused on countering intervention by the United States.<sup>3</sup> Given these developments, how should Washington respond to China's rise? Can it maintain its existing grand strategy of deep engagement, or will it be compelled to adopt a less ambitious grand strategy such as offshore balancing? What are the implications of these alternatives for U.S. military strategy, capabilities, and posture?

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1. This proposition is consistent with realist theories that emphasize the importance of great power competitions for the stability and structure of the international system. See especially Kenneth N. Waltz, *Theory of International Politics* (New York: McGraw-Hill, 1979); Robert Gilpin, *War and Change in World Politics* (New York: Cambridge University Press, 1981); Karen A. Rasler and William R. Thompson, *The Great Powers and Global Struggle, 1490–1990* (Lexington: University of Kentucky Press, 1994); Dale C. Copeland, *The Origins of Major War* (Ithaca, N.Y.: Cornell University Press, 2000); and John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: W.W. Norton, 2001). On the geopolitical dynamics of the Sino-American relationship, see Aaron L. Friedberg, *A Contest for Supremacy: China, America, and the Struggle for Mastery in Asia* (New York: W.W. Norton, 2011); and the essays in Thomas G. Mahnken, ed., *Competitive Strategies for the 21st Century: Theory, History, and Practice* (Redwood City, Calif.: Stanford University Press, 2012).

2. Hillary Rodham Clinton, "Remarks with Chinese Foreign Minister Yang Jiechi," Beijing, China, September 5, 2012, <http://www.state.gov/secretary/20092013clinton/rm/2012/09/197343.htm>.

3. For overviews of China's rise, including its economic development and military modernization, see David M. Lampton, *The Three Faces of Chinese Power: Might, Money, and Minds* (Berkeley: University of California Press, 2008); and C. Fred Bergsten et al., *China's Rise: Challenges and Opportunities* (Washington, D.C.: Peterson Institute for International Economics/Center for Strategic and International Studies, 2009).

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Deep engagement and offshore balancing offer opposing prescriptions for the role of the United States in the world. According to the former, Washington should maintain its overseas security commitments, which deter aggression, dampen rivalries, and facilitate commerce. According to the latter, it should scale back or abandon these commitments, which consume scarce resources, encourage free riding, and provoke counterbalancing. Not surprisingly, the two sides also hold contrasting views on U.S. defense policy. Proponents of deep engagement believe that the United States should preserve its long-standing military strategy of forward defense, which calls for meeting threats when and where they emerge. By contrast, proponents of offshore balancing support a military strategy of delayed defense, which would require the United States to counter foreign threats only if local nations prove unequal to the task. What is surprising, however, is that both camps are in broad agreement regarding the durability of U.S. military dominance. Deep engagers, for example, argue that the United States has a large and growing lead over all potential competitors. While offshore balancers are less sanguine, they assume that the U.S. military is capable and agile enough that it could be reduced in size, withdrawn from overseas bases, and still prevent any nation from dominating its region. Yet this consensus underestimates the potential consequences of the PRC's military modernization.

There is little doubt that the United States outstrips China in most indicators of military power, including the size of its defense budget and the number of aircraft carriers in its fleet. It also has an advantage in key measures of military effectiveness, from the level of coordination among its service branches to the operational experience of its troops. Nevertheless, the military balance between two nations is shaped as well by distance and terrain, which influence how much actual combat power each side can bring to bear in a particular theater, along with operational planning and force design, which determine whether and to what extent each side can identify and exploit its opponent's vulnerabilities.<sup>4</sup> These factors create a more complex picture of the military balance in East Asia and suggest that Washington's advantage over Beijing is not nearly as large as both sides in the grand strategy debate assume.

A fight between the United States and China would pit a maritime power far

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4. On the complexities of assessing military power and effectiveness, see Allan R. Millet, Williamson Murray, and Kenneth H. Watman, "The Effectiveness of Military Organizations," *International Security*, Vol. 11, No. 1 (Summer 1986), pp. 37–71; Ashley J. Tellis et al., *Measuring National Power in the Postindustrial Age* (Santa Monica, Calif.: RAND, 2000), chap. 7; Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, N.J.: Princeton University Press, 2004); and Risa A. Brooks and Elizabeth Stanley, eds., *Creating Military Power: The Sources of Military Effectiveness* (Redwood City, Calif.: Stanford University Press, 2007).

from home against a continental power within its own neighborhood. Consequently, Washington would need to dispatch reinforcements from thousands of miles away, sustain its military units over lengthy air and sea lines of communication, and operate them from a small number of bases. Beijing, however, would be able to concentrate its forces more rapidly and support them more easily. Compounding this geographic asymmetry, the PRC has adopted an antiaccess/area denial (A2/AD) strategy that could allow it to obstruct the arrival of additional military units and limit the effectiveness of forward deployed forces, specifically by targeting the theater bases; aircraft carrier strike groups; and command, control, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems that underpin U.S. power projection. Toward this end, China has been developing and fielding a variety of advanced land-attack, sea-denial, counter-air, and counter-C4ISR capabilities, many of which could be employed from the relative safety of its own territory. Because the United States has grown accustomed to opponents that are too weak to seriously threaten its overseas bases, air and naval forces, and information networks, a confrontation with the PRC would represent a major departure from the types of conflicts it has fought and prepared for during the unipolar era.

Ultimately, Beijing's growing military power could undermine Washington's ability to prevent local conflicts, protect longtime allies, and preserve freedom of the commons in East Asia. As a result, maintaining deep engagement and forward defense could require significant changes to U.S. military capabilities and posture, including a much greater emphasis on air and undersea platforms that can survive inside nonpermissive environments, forward bases that are better able to withstand attacks, and information networks that are less vulnerable to disruption. While offshore balancers might view this as another reason for the United States to shed its commitments, pull back its forces, and further reduce its military spending, most of these changes would also be necessary if it opted for retrenchment instead. Even though delayed defense calls for fighting abroad only when frontline nations are near defeat, intervention would still require projecting power despite A2/AD threats. In fact, retrenchment could make the United States even more susceptible to these threats and leave it with fewer options in a future crisis.

The remainder of this article develops these arguments in greater detail. The first section reviews the grand strategy debate between deep engagement and offshore balancing. The second section shows that these competing schools actually agree on the durability of U.S. military primacy, and that this consensus rests on an overly narrow conception of internal balancing under unipolarity. The third section outlines the main characteristics of forward defense and the vulnerabilities of the United States' current approach to power projection.

The fourth section summarizes China's military modernization and describes its ability to threaten U.S. forward bases, surface naval forces, and information networks. Finally, the fifth section details how the United States might adapt its military capabilities and posture in response, and argues that many of the proposed steps make sense irrespective of the grand strategy that it chooses.

### *The U.S. Grand Strategy Debate*

U.S. grand strategy under unipolarity has been a continuous topic of debate for more than two decades, with scholars weighing alternatives from neo-isolationism at one extreme to neo-imperialism at the other.<sup>5</sup> Today, however, there is little support for a retreat from the world and little appetite for remaking foreign nations. As a result, the mainstream grand strategy debate has come down to a pair of options: deep engagement or offshore balancing. Advocates of these approaches disagree not only on the virtues of U.S. security commitments, but also on their viability. As primacy optimists, deep engagers believe that the United States can still afford the costs of hegemony. Offshore balancers, who tend to be primacy pessimists, believe that many of its obligations are no longer financially sustainable.

#### THE CASE FOR CONTINUED ENGAGEMENT

According to Stephen Brooks, John Ikenberry, and William Wohlforth, who have offered the most detailed case for deep engagement, the United States should maintain the global leadership role it has played for more than sixty years.<sup>6</sup> At the broadest level, this has included creating and sustaining a liberal economic order to ensure American prosperity, establishing and enforcing a rule-based system favorable to U.S. interests, and preserving stability in key regions—objectives that have often gone hand in hand. Perhaps the most important components of deep engagement, however, are the United States' extensive security commitments.

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5. For an earlier overview of this debate, see Barry R. Posen and Andrew L. Ross, "Competing Visions for U.S. Grand Strategy," *International Security*, Vol. 21, No. 3 (Winter 1996/97), pp. 5–53.

6. Stephen G. Brooks, G. John Ikenberry, and William C. Wohlforth, "Don't Come Home, America: The Case against Retrenchment," *International Security*, Vol. 37, No. 3 (Winter 2012/13), pp. 7–51; and Stephen G. Brooks, G. John Ikenberry, and William C. Wohlforth, "Lean Forward: In Defense of American Engagement," *Foreign Affairs*, Vol. 92, No. 1 (January/February 2013), pp. 130–142. Deep engagement shares many similarities with selective engagement, particularly in terms of U.S. security commitments. See Robert J. Art, "Geopolitics Updated: The Strategy of Selective Engagement," *International Security*, Vol. 23, No. 3 (Winter 1998/99), pp. 79–113; and Robert J. Art, "Selective Engagement in the Era of Austerity," in Richard Fontaine and Kristin M. Lord, eds., *America's Path: Grand Strategy for the Next Administration* (Washington, D.C.: Center for a New American Security, 2012), pp. 15–27.

For instance, the United States has played a key role in policing the global commons, which includes ensuring the freedom of navigation that underpins international commerce. It has also pledged to protect dozens of allies and security partners, not only to deter attacks against them but also to dissuade them from taking actions that could trigger crises or conflicts. Finally, it has prevented hostile actors from dominating strategically and economically important areas such as Central Europe, Northeast Asia, and the Persian Gulf. For proponents of deep engagement, these efforts have fostered conditions where virtually all nations have enjoyed a greater level of prosperity and a lower likelihood of war than they would have experienced absent U.S. security guarantees. Retrenchment, therefore, would represent an enormous gamble, opening the door to economic illiberalism, heightened security dilemmas, and attempts to revise the territorial status quo.

In addition, deep engagers are primacy optimists, who downplay the financial burdens of global leadership and dismiss arguments that American economic decline is making retrenchment inevitable. Since the end of the Cold War, the United States has managed to uphold its security commitments while devoting less than 5 percent of its gross domestic product (GDP) to defense spending, even during the height of the Iraq and Afghanistan wars.<sup>7</sup> In the view of deep engagers, the United States will also retain the resources to meet its obligations. According to Brooks and Wohlforth, because the United States enjoys a large lead in all elements of national power, and because significant changes in the overall distribution of power tend to occur gradually, “a rapid end of a single superpower world is extremely unlikely.”<sup>8</sup> Even the PRC’s eco-

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7. U.S. defense spending reached a post-Cold War peak of 4.8 percent of GDP in fiscal year (FY) 2010, but has generally averaged between 3 and 4 percent since the mid-1990s, and is currently projected to fall below 3 percent by FY2018. Spending has reached historically high levels in recent years when measured in inflation-adjusted dollars. As a percentage of GDP, however, it has remained relatively low by post-1945 standards. See Office of Management and Budget, *Fiscal Year 2014 Budget of the United States: Historical Tables* (Washington, D.C.: U.S. Government Printing Office, 2013), pp. 57–59; and Todd Harrison, “Analysis of the FY2013 Defense Budget and Sequestration” (Washington, D.C.: Center for Strategic and Budgetary Assessments, August 2012), p. 8.

8. Stephen G. Brooks and William C. Wohlforth, “Assessing the Balance,” *Cambridge Review of International Affairs*, Vol. 24, No. 2 (June 2011), p. 202. On the durability of unipolarity, see also William C. Wohlforth, “The Stability of a Unipolar World,” *International Security*, Vol. 24, No. 1 (Summer 1999), pp. 30–32; Stephen G. Brooks and William C. Wohlforth, “American Primacy in Perspective,” *Foreign Affairs*, Vol. 81, No. 4 (July/August 2002), pp. 20–33; and Stephen G. Brooks and William C. Wohlforth, *World Out of Balance: International Relations and the Challenge of American Primacy* (Princeton, N.J.: Princeton University Press, 2008), especially pp. 27–35. Despite being a proponent of deep engagement, G. John Ikenberry is less optimistic that unipolarity will persist, but concludes that international institutions can “lock in” rules and norms that will continue to reflect U.S. interests even after the United States’ relative power advantage has declined. See Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars* (Princeton, N.J.: Princeton University Press, 2001); and Ikenberry, *Liberal Leviathan: The Origins,*

nomic growth does not pose a major challenge to its position. As Michael Beckley has argued, the United States is still a much wealthier and more innovative nation than China, advantages “that will persist well into this century.”<sup>9</sup>

#### THE RATIONALE FOR RETRENCHMENT

In sharp contrast, advocates of offshore balancing maintain that the United States’ existing grand strategy is counterproductive and unnecessary. This indictment rests on several assumptions. First, given its geographic insularity and large nuclear arsenal, the United States is safe from almost any serious threat to its territory, with the possible exception of a peer competitor that dominates Eurasia. Second, its overseas military presence and activist foreign policy consume significant resources and encourage balancing behavior, undermining its relative power position. Third, military alliances impose disproportionate costs and risks on the United States, because other nations free ride on its security guarantees and provoke unnecessary conflicts. Fourth, local actors have strong incentives to counter nearby threats, meaning the United States should pass the buck rather than rush to their aid. Based on these assumptions, offshore balancers argue that the United States should scale back its security commitments, share or shed the burdens of maintaining global order, and join with foreign nations to preserve local power balances only when those nations demonstrate that they cannot do so alone.<sup>10</sup>

Although the United States has thus far avoided the type of retrenchment that most advocates of offshore balancing have proposed, supporters of this grand strategy have become increasingly vocal as a result of the costly wars in Iraq and Afghanistan, the legacy of the Great Recession, and the rise of China. These developments have contributed to a widely held view that the United

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*Crisis, and Transformation of the American World Order* (Princeton, N.J.: Princeton University Press, 2011).

9. Michael Beckley, “China’s Century? Why America’s Edge Will Endure,” *International Security*, Vol. 36, No. 3 (Winter 2011/12), p. 77.

10. Eugene Gholz, Daryl G. Press, and Harvey M. Sapolsky, “Come Home America: The Strategy of Restraint in the Face of Temptation,” *International Security*, Vol. 21, No. 4 (Spring 1997), pp. 5–48; Christopher Layne, “From Preponderance to Offshore Balancing: America’s Future Grand Strategy,” *International Security*, Vol. 22, No. 1 (Summer 1997), pp. 86–124; Christopher Layne, “Offshore Balancing Revisited,” *Washington Quarterly*, Vol. 25, No. 2 (Spring 2002), pp. 233–248; Christopher Layne, *The Peace of Illusions: American Grand Strategy from 1940 to the Present* (Ithaca, N.Y.: Cornell University Press, 2006); Barry R. Posen, “A Grand Strategy of Restraint,” in Michèle A. Flournoy and Shawn Brimley, eds., *Finding Our Way: Debating American Grand Strategy* (Washington, D.C.: Center for a New American Security, 2008), pp. 83–102; Barry R. Posen, “Pull Back: The Case for a Less Activist Foreign Policy,” *Foreign Affairs*, Vol. 92, No. 1 (January/February 2013), pp. 116–128; Robert A. Pape, “Empire Falls,” *National Interest*, No. 99 (January/February 2009), pp. 21–34; John J. Mearsheimer, “Imperial by Design,” *National Interest*, No. 111 (January/February 2011), pp. 16–34; and Stephen M. Walt, “The End of the American Era,” *National Interest*, No. 116 (November/December 2011), pp. 6–16.

States has entered a period of declining economic power and diminished international influence. As the most recent report in the National Intelligence Council's influential *Global Trends* series concluded, "[T]he 'unipolar moment' is over and Pax Americana . . . is fast winding down."<sup>11</sup>

For offshore balancers, many of whom have long been primacy pessimists, recent challenges only confirm that the United States can no longer afford to uphold its security commitments. Christopher Layne, for example, has argued that the emergence of new powers is bringing unipolarity to an end, while structural weaknesses in the U.S. economy are making deep engagement financially unsustainable. The rise of China, according to Layne, is "the most tangible evidence of the erosion of the United States' power." At the same time, continuing deficits and mounting debt are likely to generate downward pressure on defense spending, which "will compel the United States to retrench strategically."<sup>12</sup> Moreover, whereas proponents of deep engagement emphasize the potential dangers of retrenchment, offshore balancers believe that it could slow or stop the United States' decline. In principle, with fewer commitments, a more limited military presence overseas, and smaller armed forces, the U.S. government could reinvest in domestic programs, rejuvenate its economy, and concentrate its remaining capabilities on vital rather than peripheral interests.<sup>13</sup>

### *Is U.S. Military Dominance Enduring, Under Duress, or Both?*

Despite serious disagreements about the future of the United States' relative power position and the risks of retrenchment, the deep engagement school and the offshore balancing school agree on one crucial point: U.S. military power will remain sufficient to prevent any nation from dominating its neighbors through aggression or coercion. This means that the United States will be able to deter or defeat China if necessary—not because China is the most likely threat to stability, but because it is the most serious potential threat given the resources at its disposal and the importance of its region. Of course, both sides recognize that the PRC has been steadily increasing its defense spending and improving its military forces. Neither side in the grand strategy debate

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11. National Intelligence Council, *Global Trends 2030: Alternative Worlds* (Washington, D.C.: U.S. Government Printing Office, 2012), p. x.

12. Christopher Layne, "This Time It's Real: The End of Unipolarity and the *Pax Americana*," *International Studies Quarterly*, Vol. 56, No. 1 (March 2012), pp. 204, 210. See also Christopher Layne, "The Unipolar Exit: Beyond the *Pax Americana*," *Cambridge Review of International Affairs*, Vol. 24, No. 2 (June 2011), pp. 149–164.

13. Paul K. MacDonald and Joseph M. Parent, "Graceful Decline? The Surprising Success of Great Power Retrenchment," *International Security*, Vol. 35, No. 4 (Spring 2011), pp. 7–44.

views these developments as a major challenge to U.S. military primacy, however, because of their singular focus on global power projection rather than local power balances. Yet this perspective largely ignores the possibility that the United States could remain dominant globally while losing significant ground locally.

#### MILITARY PRIMACY AND THE BARRIERS TO BALANCING

Proponents of deep engagement generally dispute the claim that U.S. military dominance is eroding and discount the notion that China is becoming a serious strategic competitor. According to Joseph Nye, “[M]ilitary power is largely unipolar, and the United States is likely to retain primacy for quite some time.”<sup>14</sup> Brooks, Ikenberry, and Wohlforth conclude that the United States’ advantage is actually increasing relative to potential rivals. As a result, “China’s economic rise will not demand a dramatic increase in U.S. military efforts anytime soon.”<sup>15</sup> Likewise, Michael Beckley argues that in the event of a Sino-American conflict, the PRC’s performance “would not necessarily be much better than that of, say, Iraq circa 1991,” because the United States retains conventional military superiority over China and can easily counter its offensive capabilities.<sup>16</sup>

For their part, advocates of offshore balancing believe that U.S. military power has declined from its post-Cold War apex. Not only has the emergence of multiple competitors divided Washington’s attention and dispersed its resources, but the proliferation of small arms and military skill has also made taking and holding territory increasingly difficult.<sup>17</sup> Yet the underlying premise of their preferred grand strategy is that the United States can reduce the size of its armed forces, pull those forces back from bases overseas, and still ensure that aggressive nations do not dominate critical regions. In the case of East Asia, for example, offshore balancers are confident that the United States could prevent a revisionist China from permanently overturning the status quo, even if it became strong enough to defeat a coalition of its neighbors—which, from their perspective, would be the only situation threatening enough to warrant U.S. military intervention. According to Layne, because U.S. air and maritime power “is based on long-range strike capabilities,” Washington “can keep its forces in an over-the-horizon posture with respect to East Asia and

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14. Joseph S. Nye Jr., “The Twenty-First Century Will Not Be a ‘Post-American’ World,” *International Studies Quarterly*, Vol. 56, No. 1 (March 2012), p. 215.

15. Brooks, Ikenberry, and Wohlforth, “Don’t Come Home, America,” p. 19.

16. Beckley, “China’s Century?” pp. 75–76.

17. Layne, “The Unipolar Exit,” pp. 154–155; and Barry R. Posen, “From Unipolarity to Multipolarity: Transition in Sight?” in G. John Ikenberry, Michael Mastanduno, and William C. Wohlforth, eds., *International Relations Theory and the Consequences of Unipolarity* (New York: Cambridge University Press, 2011), pp. 329–332.



limit itself to a backstopping role in the unlikely event that the regional balance of power falters.”<sup>18</sup>

What accounts for this consensus? The existing literature identifies two principal barriers to internal balancing against the United States, both of which suggest that its military primacy will endure even if its relative economic strength declines.<sup>19</sup> First, prospective balancers are likely to incur significant opportunity costs, because competing with the United States would inhibit their ability to manage more pressing security challenges. As Robert Jervis notes, while the leading power in a unipolar system is “concerned with everything that happens everywhere,” other nations “are primarily concerned with what happens in their neighborhoods.”<sup>20</sup> In most cases, therefore, they will prioritize addressing nearby threats over counterbalancing a distant hegemon. Because these objectives ostensibly require very different military capabilities, few nations can afford to pursue them both at the same time.<sup>21</sup>

Second, even if prospective balancers were not distracted by more urgent demands on their attention and resources, they would still incur enormous sunk costs given the magnitude of the United States’ conventional military edge. By nearly any measure, the United States possesses the world’s most advanced ground, amphibious, naval, aerospace, and special operations forces. It also devotes more resources to defense than almost every other nation combined.<sup>22</sup> Most important, its “command of the commons” provides an unparalleled ability to deploy, operate, and sustain military units overseas.<sup>23</sup> Other nations, by contrast, can conduct large military operations only in close proximity to their own territory, and it is debatable whether any rising powers, including China, will be able to match the United States’ global reach for decades.<sup>24</sup> According to

18. Christopher Layne, “China’s Challenge to U.S. Hegemony,” *Current History*, January 2008, p. 18.

19. “Internal balancing” refers to arms buildups or other steps that nations can take on their own to rectify an imbalance of power. By contrast, “external balancing” refers to the formation of alliances and alignments with other nations to restore parity. See Waltz, *Theory of International Politics*, p. 118.

20. Robert Jervis, “Unipolarity: A Structural Perspective,” in Ikenberry, Mastanduno, and Wohlforth, *International Relations Theory and the Consequences of Unipolarity*, p. 264.

21. See, for example, Wohlforth and Brooks, *World Out of Balance*, pp. 38–40; William C. Wohlforth, “U.S. Strategy in a Unipolar World,” in G. John Ikenberry, ed., *America Unrivaled: The Future of the Balance of Power* (Ithaca, N.Y.: Cornell University Press, 2002), p. 102; and Stephen M. Walt, “Keeping the World ‘Off-Balance’: Self-Restraint and U.S. Foreign Policy,” in Ikenberry, *America Unrivaled*, pp. 136–138.

22. According to the International Institute for Strategic Studies (IISS), the United States accounted for approximately 40 percent of global defense spending in 2012. IISS, *The Military Balance 2013* (London: International Institute for Strategic Studies, 2013), p. 41.

23. Barry R. Posen, “Command of the Commons: The Military Foundations of U.S. Hegemony,” *International Security*, Vol. 28, No. 1 (Summer 2003), pp. 5–46.

24. By one estimate, aspiring naval powers have typically required three decades of continuous effort to build capable blue-water fleets, which remain a hallmark of global power projection. See

primacy optimists, this gap is so wide that “any effort to compete directly with the United States is futile, so no one tries.”<sup>25</sup> Even primacy pessimists acknowledge that nations hoping to constrain the United States and frustrate its objectives must settle for nonmilitary options, including diplomatic, economic, and institutional measures they refer to as “soft balancing.”<sup>26</sup>

INTERNAL BALANCING UNDER UNIPOLARITY: THINK LOCALLY, NOT GLOBALLY

Although both sides in the grand strategy debate remain confident in U.S. military primacy, these barriers reflect an assumption that meaningful internal balancing against the United States requires the acquisition of extra-regional power-projection capabilities, which might not be well suited for intra-regional contingencies but would undercut its largest and most important military advantage. Consider the case of China. Brooks and Wohlforth argue that Beijing’s efforts to modernize the PLA (which include the acquisition of modern submarines, combat aircraft, and missile forces) should not be considered balancing because they do not fundamentally alter the United States’ unique status as a global military power.<sup>27</sup> In Layne’s view, these efforts are an example of balancing, although barely, because China’s main goal is to enhance its economic power now so that it can contest U.S. military power in the future.<sup>28</sup> For optimists and pessimists alike, therefore, global power projection not only underpins the United States’ leading position in the international system, but also represents the only real threat to U.S. military dominance.<sup>29</sup>

This power-projection bias is problematic, however, because it does not distinguish between global and local balancing behavior—a distinction that is particularly relevant in the Sino-American case. Specifically, a rising power such as China can balance against a distant competitor such as the United

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James R. Holmes and Toshi Yoshihara, “Hardly the First Time,” *U.S. Naval Institute Proceedings*, Vol. 139, No. 4 (April 2013), pp. 22–27.

25. Wohlforth, “The Stability of a Unipolar World,” p. 18.

26. See, for example, Layne, *The Peace of Illusions*, pp. 142–146; Stephen M. Walt, *Taming American Power: The Global Response to U.S. Primacy* (New York: W.W. Norton, 2005), chap. 4; Robert A. Pape, “Soft Balancing against the United States,” *International Security*, Vol. 30, No. 1 (Summer 2005), pp. 7–45; and T.V. Paul, “Soft Balancing in the Age of U.S. Primacy,” *International Security*, Vol. 30, No. 1 (Summer 2005), pp. 46–71.

27. Brooks and Wohlforth, *World Out of Balance*, p. 43. See also Keir A. Lieber and Gerard Alexander, “Waiting for Balancing: Why the World Is Not Pushing Back,” *International Security*, Vol. 30, No. 1 (Summer 2005), pp. 121–123.

28. Layne, *The Peace of Illusions*, pp. 143, 145–146.

29. As Layne rightly notes, primacy optimists often conflate the strategy of balancing with the outcome of parity, and therefore dismiss the former when it does not produce the latter. Although primacy pessimists do not believe that balancing behavior must achieve a balance of power, they do agree that a less ambitious military buildup by China would not be a serious strategic challenge to U.S. dominance. See Christopher Layne, “The Unipolar Illusion Revisited: The Coming End of the United States’ Unipolar Moment,” *International Security*, Vol. 31, No. 2 (Fall 2006), p. 29.

States by pursuing the ability to conduct large-scale military operations outside its region or by progressively extending its defensive perimeter within its region. The first option, which I refer to as “global balancing,” could allow a rising power to channel a rivalry away from its territory and challenge a hegemon in far-flung locations, although it would also introduce the risk of overextension. The second option, which I refer to as “local balancing,” could enable a rising power to deter outside intervention in its home region and maximize its freedom of action throughout its neighborhood, although it would not alter the structure of the international system. These strategies are not mutually exclusive. Nevertheless, a rising power is likely to emphasize local balancing until it is secure enough to devote more effort and resources toward global balancing. To date, however, assessments of internal balancing against the United States have focused on the presence or absence of global balancing behavior, given that it is a necessary step for a nation that seeks parity.

Although this distinction might seem intuitive, it illustrates why the barriers to internal balancing described above are flawed. The opportunity cost argument, for example, assumes that rivalries among neighboring nations and competitions between those nations and a distant hegemon not only are independent of one another, but also have very different implications for military investment options. From the perspective of a rising power, however, seeking an advantage over nearby rivals and counterbalancing a distant hegemon can be overlapping objectives that require similar capabilities. For instance, even if the PRC’s chief goal is not for China to become a peer competitor of the United States but rather to gain a coercive advantage over neighbors such as Taiwan and Japan, it cannot succeed without undermining the United States’ ability to come to their defense. Put simply, because of its expansive interests and extensive reach, the United States represents the chief impediment to any rising power, whether that power wants to reorder the international system or elevate its position within its own region.

Alternatively, the sunk cost argument assumes that the United States’ military edge is so large that other nations are dissuaded from even attempting to catch up. If a rising power’s aim is to alter the military balance in its neighborhood, however, it does not need to pursue parity. Instead, it needs only to increase the costs of power projection, which is a much less demanding objective. In fact, during a confrontation close to home, a nation such as China would enjoy a number of advantages over a stronger but remote competitor. As a geographically isolated hegemon with geographically diverse commitments, the United States can devote only a portion of its available forces to any particular region at any one time, even during a conflict. Moreover, conducting

major military operations in a theater as large and distant as the Western Pacific would present significant logistical hurdles. Extended supply lines, long transit times for naval forces, increased refueling requirements for aircraft, and access to only a handful of main operating bases in the region would make the tyranny of distance particularly daunting, limiting the amount of combat power the United States could generate and sustain.<sup>30</sup> By contrast, China could concentrate a larger portion of its military forces against its opponent, mobilize and support these units over relatively secure interior lines of communication, stockpile more weapons and munitions than a competitor operating its forces far from home, and exploit its strategic depth by locating some potential targets deep inside its territory.<sup>31</sup>

Alone, these geographic factors might not make up for a significant disparity in military power. Relative to the United States, China still has fewer resources, less advanced technology, and no recent experience in combat operations. As a number of scholars have noted, however, this situation has created incentives for Beijing to pursue asymmetric approaches to deterrence and warfighting.<sup>32</sup> Notably, several aspects of the current U.S. way of warfare are particularly vulnerable to an asymmetric strategy, and have had a significant influence on China's military modernization.

### *The Changing Dynamics of Forward Defense*

While the United States' grand strategy of deep engagement has been characterized by several enduring objectives since the end of World War II, its post-1945 military strategy has also been guided by an overarching principle: forward defense. Rather than delaying intervention until frontline nations have fallen, the United States has sized, shaped, and postured its armed forces to counter foreign threats when and where they materialize—not only to inter-

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30. This basic point is captured by Kenneth E. Boulding's loss of strength gradient, which holds that combat power varies inversely with the distance a military must travel. See Boulding, *Conflict and Defense: A General Theory* (New York: Harper and Row, 1962), pp. 230–231, 245–246.

31. James R. Holmes, "Schelling Goes to Sea: Managing Perceptions in China's 'Contested Zone,'" *Defence Studies*, Vol. 9, No. 2 (June 2009), pp. 189–206; and Evan Braden Montgomery, "Competitive Strategies against Continental Powers: The Geopolitics of Sino-Indian-American Relations," *Journal of Strategic Studies*, Vol. 36, No. 1 (February 2013), pp. 79–80.

32. Thomas J. Christensen, "Posing Problems without Catching Up: China's Rise and Challenges for U.S. Security Policy," *International Security*, Vol. 25, No. 4 (Spring 2001), pp. 5–40; Avery Goldstein, "Parsing China's Rise: International Circumstances and National Attributes," in Robert S. Ross and Zhu Feng, eds., *China's Ascent: Power, Security, and the Future of International Politics* (Ithaca, N.Y.: Cornell University Press, 2008), pp. 59–67; Robert S. Ross, "China's Naval Nationalism: Sources, Prospects, and U.S. Response," *International Security*, Vol. 34, No. 2 (Fall 2009), pp. 54–60; and Aaron L. Friedberg, "Here Be Dragons: Is China a Military Threat?" *National Interest*, No. 103 (September/October 2009), pp. 19–25.

dict those threats as far from the U.S. homeland as possible, but also to credibly protect countries under the U.S. security umbrella.<sup>33</sup> Nevertheless, forward defense has been implemented in different ways at different times. During the Cold War, shifting views on the role of nuclear weapons and the virtues of attrition versus maneuver warfare shaped and reshaped how the United States planned to fight in Central Europe, even though its commitment to meet a Soviet invasion head-on remained constant. Not surprisingly, the United States repeatedly reassessed its military strategy, forces, and posture in the aftermath of the Cold War. Although these efforts left the basic outlines of forward defense intact, they also contributed to a particular style of power projection, one that is increasingly vulnerable to disruption by a nation with the geographic advantages described above and the military tools outlined below.

#### U.S. POWER PROJECTION IN THE POST-COLD WAR WORLD

From the outset of the unipolar era, the United States faced a security environment that was widely viewed as “more complicated, more ambiguous, and constantly changing.”<sup>34</sup> For example, it was no longer obvious where crises would erupt and therefore where the United States might need to send its forces, with some notable exceptions such as the Korean Peninsula and the Persian Gulf. In the absence of a hostile peer competitor, U.S. defense planners also had to devise new force sizing and shaping guidelines in preparation for a broader range of security challenges. Finally, the 1991 Persian Gulf War seemed to indicate that a revolution in military affairs was on the horizon, as the United States employed low-observable strike aircraft, laser-guided munitions, airborne surveillance platforms capable of tracking mobile ground targets, and other advanced capabilities to quickly defeat Iraq while suffering only minor losses.<sup>35</sup>

These considerations influenced a number of important developments. First, the United States significantly altered its global military posture. During the Cold War, large U.S. garrisons were stationed on the territory of frontline allies, ready to halt an invasion and conduct a counterattack. Once the Cold War

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33. On the origins of forward defense, see Melvyn P. Leffler, “The American Conception of National Security and the Beginnings of the Cold War,” *American Historical Review*, Vol. 89, No. 2 (April 1984), pp. 346–381; and Melvyn P. Leffler, *Preponderance of Power: National Security, the Truman Administration, and the Cold War* (Redwood City, Calif.: Stanford University Press, 1993), pp. 56–63, 221–229.

34. Les Aspin, *Report of the Secretary of Defense to the President and the Congress* (Washington, D.C.: U.S. Government Printing Office, 1994), p. 2.

35. On the Gulf War as a potential “precursor” to a revolution in military affairs, see Andrew F. Krepinevich, “Cavalry to Computer: The Pattern of Military Revolutions,” *National Interest*, No. 37 (Fall 1994), pp. 30–42; and Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis: Naval Institute Press, 1995), chap. 9.

came to an end, however, the United States decreased its overseas presence, forged new access agreements across the globe, and reoriented many of the units that remained abroad to deploy wherever they might be needed. In short, it moved away from a posture of “concentrated defense-in-depth” and toward “expeditionary defense-in-depth.”<sup>36</sup> Second, the United States opted to resize but not reshape its forces. Although early post–Cold War defense reviews led to significant reductions in platforms and personnel, senior officials avoided major changes in the overall composition of the U.S. military. Not only did the success of Operation Desert Storm appear to validate Cold War–era hardware and operational concepts, but the Persian Gulf War also became the model for potential conflicts against aggressive regional powers—contingencies that deeply influenced defense planning inside the Pentagon because they were considered the most stressing cases for a U.S. military facing diverse threats. There was little need, therefore, to reconsider issues such as the navy’s commitment to the carrier strike group as the centerpiece of its fleet or the air force’s preference for short-range fighters over long-range bombers.<sup>37</sup> Third, the United States worked to preserve and extend its lead in advanced military technology. Even in the midst of its post–Cold War drawdown, it still invested in critical areas such as stealthy aircraft, a variety of precision-guided munitions, and an expansive C4ISR infrastructure to enhance the mobility, survivability, and lethality of its forces.<sup>38</sup>

Consequently, U.S. power projection during the unipolar era has had several distinguishing characteristics. With a smaller military and fewer troops stationed abroad, the United States has needed to mobilize and deploy its units over an extended period of time, deploy and sustain them over air and sea lines of communication stretching across continents, and gain access to overseas facilities capable of accommodating its expeditionary forces and their large logistical “tail.” At the same time, it has continued to depend on legacy systems to generate combat power, including high-signature platforms such as nonstealthy tactical aircraft that typically need to operate from land bases or carriers in close proximity to a theater of operations.<sup>39</sup> Finally, it has employed space-based assets and information-technology systems to support nearly

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36. Stacie L. Pettyjohn, *U.S. Global Defense Posture, 1783–2011* (Santa Monica, Calif.: RAND, 2012), chaps. 9–10.

37. Mark Gunzinger, *Shaping America’s Future Military: Toward a New Force Planning Construct* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2013). See also Zalmay Khalilzad and David Ochmanek, “Rethinking U.S. Defence Planning,” *Survival*, Vol. 39, No. 1 (Spring 1997), pp. 43–64; and Michael O’Hanlon, “Prudent or Paranoid? The Pentagon’s Two-War Plans,” *Survival*, Vol. 43, No. 1 (Spring 2001), pp. 37–52.

38. Thomas G. Mahnken, *Technology and the American Way of War since 1945* (New York: Columbia University Press, 2008), chap. 5.

39. See Barry D. Watts, *The Maturing Revolution in Military Affairs* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2011), pp. 36–37; and especially Alan Vick, “Challenges to

every aspect of a campaign, from collecting targeting data to coordinating troop movements.

#### THE EMERGING ANTIACCESS/AREA DENIAL CHALLENGE

Despite its well-trained personnel and high-tech weapons, the United States' military dominance since the end of the Cold War has stemmed in part from the weakness of its adversaries, none of which have been able to seriously threaten its forward bases, air and naval forces, and information networks. In short, U.S. power projection has been largely uncontested for more than two decades, with the important exception of counterinsurgency campaigns against irregular opponents. Yet this favorable situation has obscured a number of potential weaknesses.<sup>40</sup> For instance, when faced with the prospect of American intervention, a more capable opponent is unlikely to let the United States gradually build up its forces in theater, begin a campaign at the time and place of its choosing, operate from land and sea bases that are sanctuaries, support its forces across secure lines of communication, and freely use space and cyberspace. Rather, it has strong incentives to adopt an A2/AD strategy that could exploit the limitations of expeditionary warfare, expose the vulnerabilities of legacy platforms, negate many of the advantages enjoyed by networked forces, and ultimately raise the costs of conflict.

Although these two objectives often overlap, "antiaccess" refers to measures that could impede strategic mobility and therefore prevent the United States from massing forces in theater, whereas "area denial" refers to measures that could restrict its operational maneuver and therefore limit the effectiveness of forward deployed forces.<sup>41</sup> For instance, the former would include threats to overseas bases and other points of debarkation, combat and support units en route to a distant region, and computer networks that transmit mobilization and deployment information. The latter would include attacks against naval forces in littoral waters, military aircraft approaching local airspace, and satellites conducting surveillance and reconnaissance.

Of course, A2/AD challenges are not new. In the past, nations in competi-

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the American Way of War," remarks to the Global Warfare Symposium, Los Angeles, California, November 17, 2011.

40. Paul K. Davis and Peter A. Wilson, *Looming Discontinuities in U.S. Military Strategy and Defense Planning: Colliding RMAs Necessitate a New Strategy* (Santa Monica, Calif.: RAND, 2011), p. 12.

41. Andrew F. Krepinevich Jr., "The Pentagon's Wasting Assets," *Foreign Affairs*, Vol. 88, No. 4 (July/August 2009), pp. 22–23. For earlier overviews of A2/AD challenges, see Owen R. Coté Jr., "Assuring Access and Projecting Power: The Navy in the New Security Environment," MIT Security Studies Conference Report (Cambridge, Mass.: Security Studies Program, Massachusetts Institute of Technology, April 2001); Christopher J. Bowie, *The Anti-Access Threat and Theater Air Bases* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2002); and Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-Access and Area Denial Challenge* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2003).

tion with distant rivals have often taken steps to prevent opposing forces from reaching their territory or operating freely along their periphery. This includes the United States' emphasis on coastal defense to ward off an invasion throughout the nineteenth and early twentieth centuries, Germany's use of sea mines and torpedo boats to hinder a British naval blockade before World War I, and the Soviet threat to attack U.S. forward bases and interdict reinforcements bound for Europe during the Cold War. Moreover, contemporary A2/AD challenges can take a variety of forms. As Barry Posen has argued, small arms, outdated anti-aircraft capabilities, and widely available antisurface warfare systems can be used to create "contested zones" within or near a nation's borders.<sup>42</sup> On the other end of the spectrum, minor powers might attempt to deter an assault on their territory by acquiring weapons of mass destruction and holding nearby bases at risk. The Pentagon has, therefore, highlighted various A2/AD challenges in every major defense review since the early 1990s, although the term itself has only come into use more recently. Over the past several years, China has become the focal point of these concerns. Specifically, the PRC has been developing, acquiring, and fielding a variety of capabilities that could enable it to pose a genuine challenge to U.S. military power across its home region and in the global commons.

### *Creating a Theaterwide Contested Zone*

Over the past two decades, China has been engaged in a far-reaching process of military reform and modernization, one that has been deeply influenced by a series of events, including the decline and collapse of the Soviet Union, the demonstration of U.S. precision-strike capabilities during and after the 1991 Gulf War, and the failure to prevent U.S. intervention in the 1995–96 Taiwan Strait crisis. In response to these developments, Beijing departed from its earlier preoccupation with continental defense against a large mechanized army (which consumed its attention when the Soviets maintained several dozen divisions near its northern border) and downplayed its long-standing strategy of People's War (which called for drawing in and then overwhelming an invading force). Instead, it began to focus on guarding its air and maritime approaches to the east and preparing for "local wars under conditions of informationization."<sup>43</sup> By changing its warfighting doctrine, operational con-

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42. Posen, "Command of the Commons," pp. 22–42.

43. David M. Finkelstein, "China's National Military Strategy: An Overview of the 'Military Strategic Guidelines,'" in Roy Kamphausen and Andrew Scobell, eds., *Right Sizing the People's Liberation Army: Exploring the Contours of China's Military* (Carlisle, Pa.: Strategic Studies Institute, U.S. Army War College, 2007), pp. 69–140; and Roger Cliff et al., *Entering the Dragon's Lair: Chinese Anti-Access Strategies and Their Implications for the United States* (Santa Monica, Calif.: RAND, 2007),



cepts, and hardware, China has already shifted the cross-strait balance in its favor, and has sharply increased the costs of intervention should the United States become involved in a local conflict.<sup>44</sup> Looking forward, the PRC's ongoing buildup could enable it to hold at risk U.S. military assets throughout the "first island chain" that rings the East China Sea and South China Sea, to threaten U.S. surface naval forces operating within the "second island chain" that extends out to the Marianas, and to contest the United States' access to space and cyberspace.

#### THREATS TO FORWARD BASES

Conflict between the United States and China is unlikely given the heavy costs both sides would suffer and the significant risks they would run, not least of which include the disruption of trade and the danger of nuclear escalation, respectively. Nevertheless, a limited conventional war could occur if Beijing attempted to overturn the status quo—for instance, by invading or attacking Taiwan, seizing disputed territory in the East China Sea, or impeding freedom of navigation in the South China Sea. If so, one of the United States' principal instruments of force projection would be its land-based tactical aircraft. A decade and a half ago, however, Paul Bracken warned that U.S. military bases in East Asia could soon become a new "Maginot line" as ballistic missiles and weapons of mass destruction proliferated across the region.<sup>45</sup> Although this prediction might have been premature, the PLA's development of advanced aerospace capabilities has highlighted the vulnerability of large, fixed facilities and the limitations of short-range platforms that depend on access to them.

The United States has a number of air bases across the Western Pacific, but it has only two in the vicinity of the Taiwan Strait, which remains one of the most likely flash points for a regional conflict: Marine Corps Air Station Futenma and Kadena Air Base, both on the southern Japanese island of Okinawa. Kadena, in particular, would be the hub of any U.S. military operations within or near the strait; not only does it host the largest combat air wing in the U.S. Air Force, but it also has parallel runways for simultaneous aircraft launch and recovery as well as a large munitions storage facility.<sup>46</sup> In the past,

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chap. 2. "Local wars under conditions of informationization" is the most recent term that the Chinese military leadership uses to describe limited conflicts in which opposing forces will rely on (and compete over) access to space, computer systems, and the electromagnetic spectrum. See Information Office of the State Council of the People's Republic of China, "The Diversified Employment of China's Armed Forces," April 16, 2103, [http://www.china.org.cn/government/whitepaper/node\\_7181425.htm](http://www.china.org.cn/government/whitepaper/node_7181425.htm).

44. David A. Shlapak et al., *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute* (Santa Monica, Calif.: RAND, 2009), chaps. 3–5.

45. Paul Bracken, "America's Maginot Line," *Atlantic*, December 1998, pp. 85–93.

46. U.S. Air Force 18th Wing Public Affairs, "Kadena Air Base," June 2008, [http://www.kadena.af.mil/library/factsheets/factsheet\\_print.asp?fsID=12710&page=1](http://www.kadena.af.mil/library/factsheets/factsheet_print.asp?fsID=12710&page=1).

Kadena's location—it is situated approximately 450 nautical miles (nm) from the center of the strait and 350 nm from the nearest point on the Chinese mainland—was a virtue. All else being equal, the closer a base is to an area of operations, the more combat sorties it can generate. Today, however, Kadena's proximity to the PRC means that U.S. aircraft could find it difficult to even get off the ground.

As one U.S. government report explains, "China has the most active and diverse ballistic missile development program in the world."<sup>47</sup> Since it began to field conventionally armed ballistic missiles opposite Taiwan in the early 1990s, the PLA's Second Artillery Corps has amassed more than 1,100 solid-fuel, road-mobile, short-range ballistic missiles (SRBMs). Although the majority (700–750) of these SRBMs are DF-11s (CSS-7s) that cannot reach targets beyond Taiwan, many (350–400) are longer-range DF-15s (CSS-6s)—and newer DF-15s can strike targets on Okinawa. Many of these missiles are also highly accurate, and have a circular error probable (CEP) of less than 50 meters (and in some cases as little as 5 to 10 meters). Although it is not clear how many of China's DF-15s are upgraded variants, the PLA continues to replace older SRBMs with longer-range and more accurate models. The Second Artillery Corps also has upwards of 100 DF-21 (CSS-5) medium-range ballistic missiles (MRBMs) in its arsenal, all of which have sufficient range to target bases on Okinawa (and many are reported to have CEPs of 50 meters or less).<sup>48</sup>

In addition to its ballistic missiles, the Second Artillery Corps has been accumulating a large inventory of ground-launched land-attack cruise missiles (LACMs), which are less expensive and more accurate, hard to detect given their small size and low flight profile, and capable of approaching targets from multiple axes. In fact, it has already fielded 200–500 CJ-10 LACMs, which have an estimated range of 800–1,000 nm and a 10-meter CEP.<sup>49</sup> Meanwhile,

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47. National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat* (Wright-Patterson Air Force Base, Ohio: National Air and Space Intelligence Center Public Affairs Office, 2013), p. 3. On the origins and development of the PLA's missile program, see Michael S. Chase and Andrew S. Erickson, "The Conventional Missile Capabilities of China's Second Artillery Force: Cornerstone of Deterrence and Warfighting," *Asian Security*, Vol. 8, No. 2 (2012), pp. 115–137.

48. Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2010* (Washington, D.C.: Department of Defense, 2010), p. 66; Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012* (Washington, D.C.: Department of Defense, 2012), p. 29; Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013* (Washington, D.C.: Department of Defense, 2013), pp. 5, 42; "DF-11 (CSS-7/M-11)," *Jane's Strategic Weapons Systems*, August 9, 2012; "DF-15," *Jane's Strategic Weapons Systems*, December 3, 2013; and "DF-21 (CSS-5)," *Jane's Strategic Weapons Systems*, September 6, 2013. CEP is a measurement of accuracy defined as the radius of a circle within which a weapon is expected to fall 50 percent of the time.

49. Michael S. Chase, "Strategic Implications of Chinese Land-Attack Cruise Missile Develop-

Beijing has also made considerable progress in modernizing its air forces. Roughly 500 of its 2,000 fighters are fourth-generation aircraft comparable to U.S. legacy platforms such as the F-15, F-16, and F-18, and it recently revealed two different fifth-generation prototypes. Many of these aircraft can also be armed with precision munitions such as beyond-visual-range missiles for air-to-air combat, radiation homing missiles to destroy air and missile defense radars, air-launched cruise missiles to strike point targets at long distances, and both laser- and satellite-guided gravity bombs for more proximate air-to-ground attacks.<sup>50</sup>

Collectively, this set of capabilities represents a significant threat to any air bases that fall within their range. Consistent with the PLA's concept of a "joint anti-air raid campaign," physical attacks on U.S. air bases would likely commence with a salvo of SRBMs and MRBMs. These missiles could be equipped with a variety of tailored warheads, including unitary warheads to destroy point targets such as command and control facilities, concrete-penetrating submunition warheads to crater runways and taxiways, and blast or fragmentation submunition warheads to destroy aircraft parked in the open. Ballistic missile attacks could be followed by higher accuracy, higher volume air and cruise missile strikes against surviving aircraft, air defenses, munitions depots, and fuel storage areas.<sup>51</sup> With a large and increasingly modern inventory of combat aircraft, along with a growing arsenal of LACMs, the PLA could also re-attack bases after they had been repaired to impede flight operations over an extended period of time (although its ability to do so would depend on a number of factors, including how much ordnance it depleted during its initial attack, the amount of attrition it sustained during any counterattacks, its ability to perform accurate battle damage assessments, and the effectiveness of any remaining defenses). Of course, a well-coordinated air and missile campaign would be difficult to execute. Nevertheless, China appears to be making progress in this area. According to the Department of Defense, "The PLA has

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ment," in Andrew S. Erickson and Lyle J. Goldstein, eds., *Chinese Aerospace Power: Evolving Maritime Roles* (Annapolis: Naval Institute Press, 2011), pp. 288–303; and Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2012*, p. 29.

50. Wayne A. Ulman, "China's Military Aviation Forces," in Erickson and Goldstein, *Chinese Aerospace Power*, pp. 38–49; Roger Cliff, "Chinese Military Aviation Capabilities, Doctrine, and Missions," in *ibid.*, pp. 243–254; Robert Hewson, "Tooling Up: Chinese Weaponers Make Their Mark," *Jane's Defence Weekly*, November 29, 2012; and Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2013*, pp. 10, 66–67.

51. Ulman, "China's Military Aviation Forces," pp. 42–43; Shlapak et al., *A Question of Balance*, chap. 3; and Roger Cliff et al., *Shaking the Heavens and Splitting the Earth: Chinese Air Force Employment Concepts in the 21st Century* (Santa Monica, Calif.: RAND, 2011), pp. 184–186, 233–236. According to some estimates, several dozen ballistic missiles would be sufficient to temporarily shut down flight operations at Kadena. See Jeff Hagan, "The U.S. Air Force and the Chinese Aerospace Challenge," in Erickson and Goldstein, *Chinese Aerospace Power*, p. 468.

developed and fielded a robust and increasingly modern C4ISR architecture.” As a result, its air force and Second Artillery Corps have already achieved “a moderate level of capability to conduct pre-planned joint fires against fixed targets in the Pacific Theater.”<sup>52</sup>

As these threats to U.S. theater bases continue to grow, the United States might become increasingly dependent on less vulnerable facilities such as Andersen Air Force Base on the island of Guam, which is currently beyond the reach of most Chinese conventional precision-strike systems. Yet this would present a number of problems. Because it is located approximately 1,500 nm from the Taiwan Strait, relying on Andersen to conduct operations with tactical aircraft would significantly reduce the amount of combat power that the U.S. Air Force could project into East Asia. The PLA is also developing additional means to hold Andersen at risk, including surface warships, submarines, and bombers armed with extended-range cruise missiles, as well as conventionally armed intermediate-range ballistic missiles.<sup>53</sup> Finally, the threat to theater bases is not the only challenge to U.S. airpower. In addition to its offensive capabilities, China has fielded a layered, overlapping, integrated air defense network that extends well into the Taiwan Strait (and could expand even farther over time through the acquisition of more advanced surface-to-air missile systems and additional aerial refueling platforms).<sup>54</sup> U.S. aircraft operating from Japan, Guam, or carriers at sea would therefore need to penetrate heavily defended airspace to protect local allies and counter many of China’s A2/AD systems.<sup>55</sup>

#### THREATS TO SURFACE NAVAL FORCES

Alongside its land-based fighter forces, the United States would rely heavily on its aircraft carrier strike groups during a crisis or conflict with China, whether to signal its resolve or conduct combat operations.<sup>56</sup> To date, carriers

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52. Lee Fuell, “Broad Trends in Chinese Air Force and Missile Modernization,” presentation to the U.S.-China Economic and Security Review Commission, January 30, 2014, p. 10, [http://www.uscc.gov/sites/default/files/Lee%20Fuell\\_Testimony1.30.14.pdf](http://www.uscc.gov/sites/default/files/Lee%20Fuell_Testimony1.30.14.pdf).

53. J. Michael Cole, “China ‘Developing’ Navalised Version of DH-10 Cruise Missile,” *Jane’s Defence Weekly*, August 2, 2012; Office of the Secretary of Defense, *Military and Security Developments Involving the People’s Republic of China 2012*, p. 24; and Office of the Secretary of Defense, *Military and Security Developments Involving the People’s Republic of China 2013*, pp. 8, 42.

54. Ulman, “China’s Military Aviation Forces,” pp. 46–47; and Office of the Secretary of Defense, *Military and Security Developments Involving the People’s Republic of China 2013*, pp. 67–68.

55. The exception would be long-range bombers such as the B-52, which can be equipped with standoff munitions that are launched from outside enemy air defenses, although these munitions would also be vulnerable to interception.

56. The U.S. Navy currently has ten nuclear-powered carriers, including one permanently forward deployed in Japan, along with ten carrier air wings, each composed of approximately 60 fighter-attack, electronic warfare, airborne early warning, and multimission aircraft. Barring

have been an impressive symbol of U.S. military strength and an effective way to project power across the globe. In fact, given their inherent mobility, the defensive capabilities provided by their escort ships, and the weakness of recent U.S. adversaries, they have been virtually invulnerable for more than two decades. During wartime, therefore, carriers have been able to take up station relatively close to shore, devote their air wings to strike missions inside enemy territory, and conduct high-tempo flight operations during the early stages of a conflict. Yet the PRC's growing arsenal of conventional precision-strike capabilities could put carriers at risk and force them to stand off far from its coast—diminishing their symbolic value, decreasing their operational utility, and demonstrating the constraints of their range-limited air wings.<sup>57</sup>

For instance, the People's Liberation Army Navy (PLAN) has been accumulating thousands of antiship cruise missiles (ASCMs) that can be fired from a variety of platforms, including coastal defense batteries on land, maritime-strike fighters and bombers in the air, fast attack craft in littoral waters, and large surface warships farther out at sea.<sup>58</sup> Perhaps the most worrisome ASCM delivery systems, however, are the PLAN's submarines, which could be used to threaten U.S. carriers, the large surface combatants that protect them, and the replenishment ships that supply strike groups with fuel, food, and ammunition.

According to the Office of Naval Intelligence, "Since the mid-1990s, the PRC has emphasized the submarine force as one of the primary thrusts of its military modernization effort."<sup>59</sup> China currently has a pair of second-generation nuclear-powered attack submarines (SSNs) in service and is building four more improved versions. Given their speed, range, and endurance, these Shang-class SSNs could be used to collect intelligence and perhaps interdict

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any force structure cuts or additional construction delays, the size of the fleet will return to eleven (the number mandated by law) when the first Ford-class carrier is commissioned in 2016.

57. The F-35C, for example, which will eventually become the main strike aircraft on carrier flight decks, has an unrefueled range of slightly more than 600 nm. See Lockheed Martin, "F-35C Carrier Variant," <http://www.lockheedmartin.com/us/products/f35/f-35c-carrier-variant.html>.

58. Andrew S. Erickson and Jingdong Yuan, "Antiaccess and China's Air-Launched Cruise Missiles," in Erickson and Goldstein, *Chinese Aerospace Power*, pp. 278–281; Office of Naval Intelligence, *The People's Liberation Army Navy: A Modern Navy with Chinese Characteristics* (Suitland, Md.: Office of Naval Intelligence, 2009), pp. 27–28; and "China," *Jane's World Navies*, June 3, 2013.

59. Office of Naval Intelligence, *The People's Liberation Army Navy*, p. 20. On China's submarine force, see *ibid.*, pp. 20–23; Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2013*, pp. 6–7; William S. Murray, "An Overview of the PLAN Submarine Force," in Andrew S. Erickson et al., eds., *China's Future Nuclear Submarine Force* (Annapolis: Naval Institute Press, 2007), pp. 59–76; Bernard D. Cole, *Great Wall at Sea: China's Navy in the 21st Century*, 2nd ed. (Annapolis: Naval Institute Press, 2010), pp. 95–97; and Ronald O'Rourke, "PLAN Force Structure: Submarines, Ships, and Aircraft," in Phillip C. Saunders et al., eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington, D.C.: National Defense University Press, 2011), pp. 141–173.

surface ships within or beyond the second island chain, although existing boats are relatively noisy and therefore particularly vulnerable to U.S. antisubmarine warfare (ASW) assets. More than half of the PLAN's undersea fleet, however, is made up of modern diesel-electric boats, which cannot travel as far or remain at sea as long as SSNs, but which are extremely quiet, very well armed, and capable of patrolling local waters or more distant areas such as the Philippine Sea.<sup>60</sup> Especially dangerous are the dozen Kilo-class submarines that China purchased from Russia, eight of which are armed with SS-N-27B ASCMs—missiles with a range of more than 100 nm that travel toward their targets just above sea level and then accelerate to speeds in excess of Mach 2 during terminal maneuvers. China's indigenously produced Song- and Yuan-class submarines reportedly carry shorter-range subsonic ASCMs and can launch them while submerged, although the PRC is expected to develop new antiship missiles with ranges that equal or exceed that of the SS-N-27B.<sup>61</sup> Yuan-class submarines also incorporate an air-independent propulsion system, which means they do not have to approach the surface as frequently to take in oxygen and recharge their batteries (increasing their submerged endurance and therefore their stealth).

In addition to the PLAN's submarines, U.S. carrier strike groups would have to contend with China's land-based antiship ballistic missiles (ASBMs). According to the Department of Defense, this highly publicized weapons system is already being deployed by the PLA's Second Artillery Corps.<sup>62</sup> Based on the DF-21C MRBM, the DF-21D ASBM has a range of more than 800 nm and is armed with a maneuverable, terminally guided warhead to strike mobile targets and circumvent sea-based ballistic missile defenses.<sup>63</sup> It is unclear, however, whether the PLA can field the C4ISR capabilities necessary to strike a moving ship in open waters, which would require locating, classifying, and tracking a single target within a large geographic area; rapidly fusing intelligence from multiple collection platforms; transmitting launch coordinates to missile units; and accurately updating an ASBM's trajectory during its flight.

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60. They would, however, be more vulnerable in deeper waters, where acoustic conditions make detection easier and the United States' airborne ASW assets can still operate without a significant threat from China's counter-air capabilities. See Owen R. Coté Jr., "Assessing the Undersea Balance between the United States and China," in Mahnken, *Competitive Strategies for the 21st Century*, p. 186.

61. Jesse Karotkin, "Trends in China's Naval Modernization," testimony to the U.S.-China Economic and Security Review Commission, January 30, 2014, p. 8, [http://www.uscc.gov/sites/default/files/Karotkin\\_Testimony1.30.14.pdf](http://www.uscc.gov/sites/default/files/Karotkin_Testimony1.30.14.pdf).

62. Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2013*, pp. 5–6.

63. For an assessment of the PLA's ASBM program and its implications, see Andrew S. Erickson and David D. Yang, "Using the Land to Control the Sea: Chinese Analysts Consider the Antiship Ballistic Missile," *Naval War College Review*, Vol. 62, No. 4 (Autumn 2009), pp. 53–86.

Nevertheless, the PLA is developing ground-based over-the-horizon radars, reconnaissance satellites, and unmanned aerial vehicles “to locate targets at great distances from the PRC, thereby supporting long-range precision strikes, including employment of ASBMs.”<sup>64</sup>

In a Sino-American conflict, therefore, U.S. surface naval forces could find themselves in a highly contested environment long before they reach their destination. Even if submarine-launched ASCMs and land-based ASBMs did not overwhelm fleet defenses and damage carriers or other high-value platforms, they could still deplete missile interceptors and leave ships more vulnerable to subsequent attacks by ASCM-armed fast attack craft and maritime-strike fighters. As a result, carrier strike groups might have to operate at significant risk or remain beyond the effective range of their air wings, at least until the most serious threats they face have been mitigated.

#### THREATS IN SPACE AND CYBERSPACE

The United States’ military effectiveness stems in no small part from its ability to collect, analyze, store, and disseminate vast amounts of data. This, in turn, depends on its ability to operate in space and cyberspace. Satellites, for instance, are used to exercise command and control over widely dispersed units, relay communications across great distances, conduct surveillance and reconnaissance above sensitive areas, and guide weapons to their targets. In the words of then-Deputy Secretary of Defense William Lynn, “Space systems enable our modern way of war.” Without secure access to them, “many of our most important military advantages evaporate.”<sup>65</sup> Likewise, information technology networks—including internet protocol-based networks that connect users across the globe and wireless tactical networks that link units in the field—are increasingly important for logistics, communications, and warfighting. According to the Pentagon’s 2010 *Quadrennial Defense Review*, “[M]odern armed forces simply cannot conduct high-tempo, effective operations without resilient, reliable information and communication networks and assured access to cyberspace.”<sup>66</sup> For its part, China clearly recognizes that the United States’ information edge is a key element of its military power. Yet it also views U.S. C4ISR systems as a potential area of vulnerability.<sup>67</sup>

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64. Office of the Secretary of Defense, *Military and Security Developments Involving the People’s Republic of China 2011* (Washington, D.C.: Department of Defense, 2011), p. 3.

65. William J. Lynn III, “A Military Strategy for the New Space Environment,” *Washington Quarterly*, Vol. 34, No. 3 (Summer 2011), p. 7.

66. Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C.: Department of Defense, 2010), p. 37.

67. Cliff et al., *Entering the Dragon’s Lair*, p. 45. See also Christensen, “Posing Problems without Catching Up,” pp. 31–33. Chinese views on the importance of space and the vulnerabilities of U.S. space assets are reviewed in Kevin Pollpeter, “PLA Space Doctrine,” in Erickson and Goldstein,

Detailed information on China's counter-C4ISR capabilities is not publicly available. Nevertheless, the Department of Defense notes that the PLA has "a multi-dimensional program" in place "to limit or prevent the use of space-based assets by adversaries," including soft-kill methods to disable satellites and hard-kill methods to destroy them.<sup>68</sup> In 2007, for instance, China successfully tested a direct-ascent antisatellite (ASAT) weapon when it used a modified MRBM to intercept an aging weather satellite. Since then, it has conducted a pair of successful midcourse ballistic missile defense tests, effectively demonstrating the same technology.<sup>69</sup> Although China might be inhibited from using this method of attack except under extreme circumstances, mainly because of the uncontrollable collateral damage that would be caused by resulting debris, direct-ascent ASATs represent a potential threat to U.S. intelligence, surveillance, and reconnaissance satellites in low earth orbit. Moreover, China is developing other counter-space capabilities, including radio frequency jammers, directed-energy systems, and co-orbital satellites. These capabilities could allow it to calibrate the amount of damage it inflicts and to target spacecraft beyond low earth orbit—including global positioning satellites in medium earth orbit and communications satellites in geostationary earth orbit.<sup>70</sup>

As part of its broader focus on the importance of information and the virtues of information warfare, China has also placed significant emphasis on computer network exploitation and attack, which could be employed to exfiltrate sensitive data and interfere with U.S. military operations.<sup>71</sup> In 2013, the United States publicly accused the Chinese government of penetrating computer sys-

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*Chinese Aerospace Power*, pp. 50–68; Larry M. Wortzel, "The Chinese People's Liberation Army and Space Warfare," *Astropolitics*, Vol. 6, No. 2 (2008), pp. 112–137; and Dean Cheng, "China's Military Role in Space," *Strategic Studies Quarterly*, Vol. 6, No. 1 (Spring 2012), pp. 55–77.

68. Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2013*, p. 9. See also Ashley J. Tellis, "China's Military Space Strategy," *Survival*, Vol. 49, No. 2 (Autumn 2007), pp. 41–72; and Ian Easton, *The Great Game in Space: China's Evolving ASAT Weapons Programs and Their Implications for Future U.S. Strategy* (Washington, D.C.: Project 2049 Institute, 2009).

69. Kevin Pollpeter, "China's Second Ballistic Missile Defense Test: A Search for Strategic Stability" (San Diego: University of California Institute on Global Conflict and Cooperation, February 2013).

70. Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2012*, pp. 8–9; and Lt. Gen. Ronald L. Burgess Jr., statement before the U.S. Senate Committee on Armed Services, "World Wide Threat Assessment," March 10, 2011, p. 18, <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB439/docs/Underground-Burgess2011.pdf>. For contrasting views on the extent to which a Chinese counterspace campaign could degrade U.S. military power, see Geoffrey Forden, "Viewpoint: China and Space War," *Astropolitics*, Vol. 6, No. 2 (2008), pp. 138–153; and Brian Weeden, "How China 'Wins' a Space War," *China Security*, Vol. 4, No. 1 (Winter 2008), pp. 137–150.

71. Kevin Pollpeter, "Controlling the Information Domain: Space, Cyber, and Electronic Warfare," in Ashley J. Tellis and Travis Tanner, eds., *Strategic Asia 2012–13: China's Military Challenge* (Seattle, Wash.: National Bureau of Asian Research, 2012), pp. 172–177.



tems around the world, including systems used by the Pentagon and U.S. defense industry.<sup>72</sup> Not only have hackers based in China gathered detailed information on many U.S. weapons systems, which could be used to develop countermeasures and build similar capabilities, but many of these penetrations have been attributed to a dedicated unit within the PLA.<sup>73</sup> Along with continuous efforts to collect intelligence and expropriate intellectual property, computer network operations could also support an A2/AD strategy. According to one study, a key lesson the PLA has learned from the United States' post-Cold War conflicts is that U.S. logistics and deployment systems can be disrupted by cyberattacks.<sup>74</sup> Much of this information is transmitted on unclassified computer networks, which are particularly susceptible to interference.<sup>75</sup> Finally, China has been working to integrate electronic attack and computer network attack capabilities, which could give it the ability not only to jam or spoof U.S. sensors, but also to wirelessly introduce malicious code and manipulate computer systems in ships, aircraft, air defenses, or other platforms.<sup>76</sup>

### *Preserving U.S. Military Power*

What are the broader implications of China's buildup? Despite their mutual confidence in the United States' continued military primacy, both sides in the U.S. grand strategy debate underestimate the consequences of the PRC's military rise. For example, proponents of deep engagement overlook the growing obstacles to forward defense in East Asia, which will make protecting allies and preserving freedom of the commons increasingly difficult. At the same time, proponents of offshore balancing do not recognize that delayed defense suffers from many of the same limitations. Should China become hostile, collective action problems, bandwagoning behavior, or domestic constraints on resource mobilization might leave its neighbors unwilling or unable to stop it.<sup>77</sup> Under these conditions, the United States would still need to reintroduce

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72. Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2013*, pp. 32, 36–37.

73. David E. Sanger, David Barboza, and Nicole Perlroth, "Chinese Army Unit Is Seen as Tied to Hacking against U.S.," *New York Times*, February 18, 2013; Ellen Nakashima, "Confidential Report Lists U.S. Weapons System Designs Compromised by Chinese Cyberspies," *Washington Post*, May 27, 2013; and Edward Wong, "Hacking U.S. Secrets, China Pushes for Drones," *New York Times*, September 20, 2013.

74. James Mulvenon, "PLA Computer Network Operations: Scenarios, Doctrine, Organizations, and Capability," in Roy Kamphausen, David Lai, and Andrew Scobell, eds., *Beyond the Strait: PLA Missions Other Than Taiwan* (Carlisle, Pa.: Strategic Studies Institute, U.S. Army War College, 2009), p. 263.

75. *Ibid.*, pp. 269–272; and Pollpeter, "Controlling the Information Domain," p. 186.

76. Pollpeter, "Controlling the Information Domain," pp. 181–182, 187–188.

77. Mearsheimer, *The Tragedy of Great Power Politics*, pp. 156–157; Randall L. Schweller, "Unanswered Threats: A Neoclassical Realist Theory of Underbalancing," *International Security*, Vol. 29,

its forces and restore equilibrium.<sup>78</sup> A military strategy that calls for intervention only after a threat has materialized would therefore postpone rather than avoid the A2/AD problem. In fact, retrenchment could leave the United States in an even worse strategic position.

For instance, by removing forward-stationed forces the United States would become much more dependent on military units deploying from other regions. This transition from withdrawal to reengagement would magnify the vulnerabilities of expeditionary operations. Perhaps even more important, if force structure reductions and defense spending cuts prevent the United States from developing the ability to counter A2/AD threats until intervention actually becomes necessary, it might not be able to intervene at all. Proponents of offshore balancing sometimes assume that the United States can forgo responding to China's military buildup until Beijing becomes more powerful, more aggressive, or both.<sup>79</sup> Yet this may not be the case. Although it was possible for the United States to rapidly expand its forces and field new capabilities during industrial-era conflicts (i.e., the two world wars), this feat cannot be duplicated easily during the information age, when building advanced military platforms and training military personnel are far more complex, expensive, and time-consuming.<sup>80</sup> Ultimately, the United States may need to adapt its military in response to China's rise irrespective of the grand strategy that it chooses, whether to preserve forward defense or make delayed defense feasible.

#### DEVELOPING EFFECTIVE STRIKE OPTIONS

Although China is fielding a variety of conventional precision-strike systems, the growing threat to U.S. air and maritime forces also stems from their lack of

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No. 2 (Fall 2004), pp. 159–201; and Ashley J. Tellis, "China's Grand Strategy: The Quest for Comprehensive National Power," in Gary J. Schmitt, ed., *The Rise of China: Essays on the Future Competition* (New York: Encounter Books, 2009), p. 44.

78. To intervene in a regional conflict without redeploying its forces into the region, the United States would have to adopt a peripheral strategy such as blockading China's seaborne commerce from outside the Indonesian archipelago. Yet the viability of a distant blockade as a deterrent in peacetime and a coercive tool in wartime is questionable, at least on its own, and proponents of offshore balancing have not explicitly advocated this approach. Moreover, a "layered" blockade that involved commerce interdiction operations closer to China's coast would still require the use of platforms that could survive inside its A2/AD envelope. On the pros and cons of these options, see Sean Mirski, "Stranglehold: The Context, Conduct, and Consequences of an American Naval Blockade of China," *Journal of Strategic Studies*, Vol. 36, No. 3 (June 2013), pp. 385–421; and Evan Braden Montgomery, "Reconsidering a Naval Blockade of China: A Response to Mirski," *Journal of Strategic Studies*, Vol. 36, No. 4 (August 2013), pp. 615–623.

79. See, for example, Sebastian Rosato and John Schuessler, "A Realist Foreign Policy for the United States," *Perspectives on Politics*, Vol. 9, No. 4 (December 2011), p. 813.

80. As discussed below, fielding new capabilities such as a penetrating bomber to replace the B-2 can take longer than a decade. Even producing additional copies of existing high-end platforms often requires a significant amount of time. For instance, the final Nimitz-class aircraft carrier took seven years to build, whereas construction of Virginia-class SSNs takes an average of five years. See U.S. Navy, "USS George H.W. Bush (CVN 77)," <http://up-www01.fnc.navy.mil/cvn77/>; and

range, stealth, or both. For instance, the United States' inventory of manned, fixed-wing combat aviation platforms is overwhelmingly composed of tactical aircraft, which need to operate from land or sea bases near their targets to maximize their effectiveness. At the same time, nearly two-thirds of its combat naval forces are surface ships with large visual, acoustic, and electromagnetic signatures, which make them particularly susceptible to detection and attack.<sup>81</sup> One response to the PRC's military modernization, therefore, would be to rebalance the Pentagon's force structure by placing greater emphasis on capabilities that are less tied to overseas bases and less vulnerable within denial zones. For proponents of deep engagement, systems with these characteristics would bolster forward defense by increasing the amount of combat power the United States could generate at the outset of a conflict, even if its theater air bases were under assault and its surface ships were kept at bay. For proponents of offshore balancing, they would enhance delayed defense by enabling the United States to project power into a contested region such as East Asia after a withdrawal, despite the danger to its bases and supply lines.

Several existing and prospective capabilities fit this description and therefore should be a priority for U.S. defense investment. First, low-observable long-range bombers can operate from bases outside China's A2/AD envelope; they can penetrate and then persist inside defended airspace; and they can hold at risk a variety of targets, including relocatable targets that can change positions while standoff weapons such as cruise missiles are in flight, as well as hardened or deeply buried targets that can only be neutralized with munitions too large to be carried by cruise missiles. At present, however, the only penetrating bomber in the U.S. inventory is the B-2. Although this platform is currently expected to remain in service until at least 2050, there are only 20 bombers in the entire fleet, with a maximum of 14 available for combat operations at any given time.<sup>82</sup> Because the B-2 was designed three decades ago, senior U.S. Air Force officials have also warned that it will become in-

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U.S. Navy, "Virginia-class SSN," <http://www.public.navy.mil/subfor/hq/Pages/VirginiaClass.aspx>.

81. In FY2014 the United States had 3,565 manned, fixed-wing combat aircraft, including 3,407 fighter/attack aircraft and only 158 long-range strike aircraft. The U.S. Navy's "Battle Force" included 152 surface ships (not counting logistics and support vessels) and 59 submarines (not counting ballistic missile submarines that only conduct nuclear deterrent patrols) in FY2014. Department of Defense, *Annual Aviation Inventory and Funding Plan: Fiscal Years (FY) 2014–2043* (Washington, D.C.: Department of Defense, May 2013), p. 9, <http://breakingdefense.com/wp-content/uploads/sites/3/2013/06/DoD-Aircraft-Report-to-Congress-.pdf>; and Office of the Chief of Naval Operations, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2014* (Washington, D.C.: Department of Defense, May 2013), p. 5, <http://projects.militarytimes.com/pdfs/USN-Plan-FY2014.pdf>.

82. John A. Tirpak, "Old Bombers, New Again," *Air Force Magazine*, Vol. 95, No. 3 (March 2012), pp. 30–34.

creasingly vulnerable to advanced air defense systems.<sup>83</sup> In light of these factors, the Pentagon is planning to procure 80 to 100 new stealth bombers, although they will not begin to enter service until the mid-2020s at the earliest.<sup>84</sup> Moreover, previous bomber programs (including the B-2 and the “next generation bomber” that was originally intended to replace it) were either scaled back dramatically or eliminated entirely, and the current program could suffer a related fate if anticipated costs grow sharply.<sup>85</sup>

Second, new types of carrier-based aircraft could be developed with similar characteristics. Although carriers themselves are becoming more vulnerable to sea-denial threats such as China’s ASBM, their global reach still gives them considerable utility across a range of scenarios. Moreover, by altering the composition of their embarked air wings, they could avoid being sidelined during a crisis in East Asia or operating only at great risk when a conflict breaks out. Given the space and weight constraints on flight decks, unmanned systems could be designed with the necessary attributes to conduct surveillance and strike missions in contested or denied environments, even if carriers were forced to remain at a safe distance far outside the first island chain—attributes such as broadband stealth, extended range, inflight refueling capacity, and a large sensor and weapons payload.<sup>86</sup> In fact, the U.S. Navy has been experimenting with unmanned carrier aviation for several years, recently conducted a successful launch and recovery at sea using a test platform, and currently plans to begin putting unmanned systems on flight decks by 2020. It is unclear, however, whether its unmanned carrier-launched airborne surveillance and strike (UCLASS) program will yield a platform that can operate from range, survive inside defended airspace, and locate as well as engage diverse targets, or instead something that can only conduct more limited missions in less demanding scenarios.<sup>87</sup>

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83. Dave Majumdar, “Aging B-2 Technology Highlights Need for New Bomber: Schwartz,” *Defense News*, February 28, 2012; and Lt. Gen. James M. Kowalski, presentation to the U.S. Senate Armed Services Committee Strategic Forces Subcommittee, April 17, 2013, p. 8, <http://www.airforcemag.com/testimony/Documents/2013/April%202013/041713kowalski.pdf>.

84. Michael A. Miller, “U.S. Air Force Bomber Sustainment and Modernization” (Washington, D.C.: Congressional Research Service, April 23, 2013), pp. 1–31; and Elaine M. Grossman, “Air Force Chief Calls New Bomber a ‘Must Have Capability,’” *Global Security Newswire*, September 18, 2013.

85. Tony Capaccio, “U.S. Bomber Planes at \$81 Billion Seen 47% More Than Plan,” *Bloomberg*, December 6, 2013.

86. Thomas P. Ehrhard and Robert O. Work, *Range, Persistence, Stealth, and Networking: The Case for a Carrier-Based Unmanned Combat Air System* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2008).

87. David Majumdar, “Reduced Capability Leaves UCLASS Vulnerable to Budget Axe,” *Flight International*, August 9, 2013, <http://www.flightglobal.com/news/articles/reduced-capability-leaves-uclass-vulnerable-to-budget-axe-389305/>; and David Majumdar and Sam LaGrone,

Third, the U.S. Navy's submarines not only have unlimited range thanks to their nuclear propulsion systems, but they are also extremely stealthy given the opacity of the undersea environment, advanced signature reduction technologies, and the limited ASW capabilities of potential adversaries, including China. With this combination of flexibility and survivability, SSNs and guided missile submarines (SSGNs) can be used to collect intelligence and deploy special operations personnel inside denied areas, hunt down opposing naval forces, conduct offensive mining operations, and launch standoff strikes against targets ashore. Because the retirement of older boats will soon outpace the delivery of new ones, however, the size of the SSN fleet is poised to shrink from 55 to 42 over the next decade and a half, before rebounding slightly. Not only will a smaller undersea force reduce the number of SSNs that can be deployed in peacetime and surged during a crisis; it will also magnify the chief limitation of individual boats: their modest payload capacity.

The Los Angeles-class and Virginia-class SSNs that constitute the bulk of the fleet can each carry fewer than 40 munitions. In the event of a conflict in the Western Pacific, therefore, they could quickly exhaust their magazines, which would necessitate reloading at a safe port such as Guam or perhaps Hawaii if the former is no longer a sanctuary. Moreover, although the navy's four SSGNs (converted Ohio-class ballistic missile submarines) can each carry up to 154 Tomahawk LACMs, they will be decommissioned between 2026 and 2028, and there are no plans to replace them.<sup>88</sup> Because the declining number of undersea platforms is the result of procurement decisions made more than a decade ago, there is no quick or easy way to reverse this trend. Alternatively, it is possible to mitigate the shortfall in strike capacity that will occur when SSGNs exit the fleet by designing future Virginia-class SSNs to carry 28 additional LACMs. As a result of budgetary constraints and competition for resources within the navy's shipbuilding account, however, the United States may not be able to afford the number of SSNs that current plans call for, and may not be able to build improved boats with added firepower.<sup>89</sup>

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"Navy Delays UCLASS Request for Proposal amidst Requirement Evaluation," USNI News, January 22, 2014, <http://news.usni.org/2014/01/22/navy-delays-uclass-request-proposal-amidst-requirement-evaluation>.

88. On the changing size and composition of the submarine force, see Rear Adm. Richard P. Breckenridge and Rear Adm. David C. Johnson, statement before the House Armed Services Committee Subcommittee on Seapower, September 12, 2013, <http://docs.house.gov/meetings/AS/AS28/20130912/101281/HHRG-113-AS28-Wstate-BreckenridgeR-20130912.pdf>; and Ronald O'Rourke, "Navy Virginia (SSN-774) Class Attack Submarine Procurement" (Washington, D.C.: Congressional Research Service, September 27, 2013).

89. Congressional Budget Office, "An Analysis of the Navy's Fiscal Year 2014 Shipbuilding Plan" (Washington: D.C.: Congressional Budget Office, October 2013), p. 24; and Lee Hudson, "Navy Would Look to Cut VA-Class Sub Build Rate to Pay for SSBN(X)," *Inside the Navy*, January 31, 2014.

INCREASING BASE RESILIENCE

Whether the United States plans to maintain its overseas military presence and protect its allies or withdraw its forces and reintroduce them if local nations are near defeat, it will need to use forward bases that are increasingly vulnerable to missile attack. Even with greater investments in longer-range systems, short-range aircraft will still account for all of its air-to-air combat capability and most of its air-to-ground strike capacity. Forward bases would also be needed to support airborne ISR, ASW, and aerial refueling platforms. Meanwhile, damage to port facilities in or near the theater would hinder logistics networks and make it extremely difficult for surface ships and submarines to conduct repairs and reload without lengthy transits to distant locations.

To address the growing missile threat, the United States could make its forward bases more resilient through a combination of passive and active measures.<sup>90</sup> Passive measures, for example, are particularly relevant in the context of air base defense, and would include gaining access to dispersal airfields, expanding runway repair capacity, and building hardened structures so that aircraft and critical supplies are less vulnerable to small and inexpensive submunitions. If the PLA conducted an offensive missile campaign, steps such as these would not only help U.S. forces to survive, but they could also compel China to deplete its inventory of missiles by increasing the number of locations it would need to strike, the number of targets that could only be destroyed by missiles armed with unitary warheads or larger submunitions, and the number of salvos necessary to impede flight operations over time.<sup>91</sup>

Although the United States emphasized dispersal, hardening, and runway repair during the Cold War, when it assumed that its air bases overseas would be attacked at the outset of a conflict, base resilience has not been a serious concern until very recently.<sup>92</sup> Efforts that are now under way have also been limited, and include funding to protect fuel infrastructure and build a single hardened aircraft shelter at Andersen Air Force Base, as well as investigating the use of airfields on Saipan and Tinian as potential dispersal locations.<sup>93</sup>

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90. Base defense is one area where proponents of deep engagement and offshore balancing might disagree, insofar as the latter often call for withdrawing U.S. military forces from East Asia (even though U.S. forces would eventually need to return to forward bases in the event that intervention became necessary). Nevertheless, offshore balancers should still be in favor of increasing the resilience of facilities in and around Guam, a U.S. territory that would be the key hub for combat operations and logistics if the United States needed to redeploy its forces into the region.

91. John Stillion, "Fighting under Missile Attack," *Air Force Magazine*, Vol. 92, No. 8 (August 2009), pp. 34–37; and John Stillion and David T. Orletsky, *Airbase Vulnerability to Cruise-Missile and Ballistic-Missile Attacks: Technology, Scenarios, and U.S. Air Force Responses* (Santa Monica, Calif.: RAND 1999), chap. 4.

92. Christopher J. Bowie, "The Lessons of Salty Demo," *Air Force Magazine*, Vol. 92, No. 3 (March 2009), pp. 54–57.

93. Department of the Air Force, *Military Construction Program: Fiscal Year (FY) 2014 Budget Estimates* (Washington: D.C.: Department of the Air Force, April 2013), pp. 140–144, <http://>

Additional measures would undoubtedly be expensive in some cases and politically sensitive in others, but might include constructing additional hardened shelters at high-priority bases and pursuing dispersal options for U.S. aircraft operating from Japan (namely, access to Japanese military and civilian airfields).

Active defenses, by contrast, are used to disrupt or destroy incoming missiles. The United States currently deploys several different systems to intercept ballistic missiles, which are particularly difficult to defend against given their high terminal velocity. These include the Standard Missile-3 (SM-3) carried aboard Aegis-equipped cruisers and destroyers, as well as the ground-based Terminal High Altitude Area Defense (THAAD) and Patriot Advanced Capability-3 (PAC-3) systems. Unfortunately, missile attack against fixed targets is not only easier but also far more cost-effective than missile defense. For instance, individual Chinese SRBMs are reported to cost between \$500,000 and \$2 million each.<sup>94</sup> By comparison, a single PAC-3 missile costs \$3.4 million; a single THAAD missile costs \$11.6 million; and SM-3 missiles cost between \$11.1 and \$13.4 million each, depending on the variant. Moreover, standard firing doctrine for missile defense units calls for launching multiple shots against a single incoming missile to maximize the probability of a successful intercept.<sup>95</sup>

Given the limits of relying on these types of kinetic interceptors alone, directed energy weapons could contribute to more affordable and effective layered defenses. Not only might they help to reverse the unfavorable cost-exchange ratio that currently governs the missile attack–missile defense competition, but they could also provide nearly unlimited magazine depth so long as they have sufficient energy and cooling.<sup>96</sup> To date, the Pentagon has made

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[www.saffm.hq.af.mil/shared/media/document/AFD-130408-011.pdf](http://www.saffm.hq.af.mil/shared/media/document/AFD-130408-011.pdf); and Commonwealth of the Northern Mariana Islands (CNMI) Military Integration Office, "Overview: CNMI Divert Activities Environmental Impact Statement" (Saipan: CNMI Military Integration Office, September 2012), pp. 2–3, [http://www.cnmi-mio-divertactivitieseis.com/images/library/cnmi\\_divert\\_eis\\_exec\\_sum\\_2012\\_09\\_10.pdf](http://www.cnmi-mio-divertactivitieseis.com/images/library/cnmi_divert_eis_exec_sum_2012_09_10.pdf).

94. "Taiwan Rejects China's Missile-Reduction Path," *Jane's Missiles and Rockets*, December 23, 2002; and J. Michael Cole, "Analysis: U.S. Arms Package Could Be an Expensive Issue," *Taipei Times*, December 16, 2009.

95. Department of Defense, *Fiscal Year (FY) 2014 President's Budget Submission, Army Justification Book, Missile Procurement* (Washington, D.C.: Department of Defense, April 2013), p. 3, <http://asafm.army.mil/Documents/OfficeDocuments/Budget/budgetmaterials/fy14/pforms//missiles.pdf>; and Department of Defense, *Fiscal Year (FY) 2014 President's Budget Submission, Missile Defense Agency Justification Book*, Vol. 2b (Washington, D.C.: Department of Defense, April 2013), pp. 3, 13, [http://comptroller.defense.gov/defbudget/fy2014/budget\\_justification/pdfs/02\\_Procurement/Vol\\_2\\_Missile\\_Defense\\_Agency\\_PB\\_2014.pdf](http://comptroller.defense.gov/defbudget/fy2014/budget_justification/pdfs/02_Procurement/Vol_2_Missile_Defense_Agency_PB_2014.pdf). Figures are based on enacted FY2012 funding.

96. Gen. Larry D. Welch and Dr. Robert J. Hermann, coauthors, "Defense Science Board Task Force on Directed Energy Weapons" (Washington, D.C.: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, December 2007); and Mark Gunzinger with Christopher

some investments in directed energy technology, in particular solid-state lasers to defend surface ships against small boats and cruise missiles (which could allow them to carry fewer defensive interceptors and therefore more offensive weapons). Yet it has devoted less effort to developing systems such as ground-based lasers powerful enough to protect large facilities against ballistic missile attacks.<sup>97</sup>

#### REDUCING NETWORK VULNERABILITY

Regardless of the grand strategy that it chooses, the United States could find itself conducting operations in environments where the information its forces require is unavailable or unreliable, unless it takes steps to protect its networks. In fact, threats in space and cyberspace might have an outsized impact in the case of offshore balancing. Because the logistical demands of mobilization, deployment, and sustainment during a crisis are likely to be greater following a withdrawal from overseas bases and a drawdown in standing force levels, the United States' dependence on information networks to organize and prepare for military operations would increase as well. There are, however, a number of measures that could mitigate the dangers posed by ASAT weapons and cyberwarfare capabilities.

In space, for example, the United States could reduce the possibility of signals being jammed, intercepted, or corrupted by using frequency-hopping transmissions more broadly, encrypting all data transmitted to and from satellites, and employing satellite cross-links to bypass ground stations and reduce opportunities for deliberate interference, among other steps. It could also guard against the prospect that satellites themselves might be disabled or destroyed by creating a more dispersed space architecture over time.<sup>98</sup> Rather than relying on large, expensive, and highly specialized satellites in relatively small constellations, the United States could place military payloads (including some ISR sensors as well as protected communications packages and global positioning transmitters) on nonmilitary and even non-American platforms (including commercial satellites and military satellites operated by close U.S. allies). This type of dispersal would not only provide redundant systems

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Dougherty, *Changing the Game: The Promise of Directed-Energy Weapons* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2012). Kinetic interceptors would still be useful as a hedge against the limits of laser-based defenses, such as the need for sufficient dwell time, the potential for beam dissipation in adverse atmospheric conditions, and the importance of achieving side-angle shots against missile bodies rather than head-on shots against warheads and reentry vehicles that can withstand high temperatures.

97. Gunzinger and Dougherty, *Changing the Game*, pp. 27–28, 53–56.

98. Todd Harrison, *The Future of MILSATCOM* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2013), pp. 25–27.



in the event of an attack, but would also enhance deterrence by reducing the likelihood that China could deny the United States access to space—and by increasing the likelihood that Beijing would need to target satellites owned by other nations if it tried.<sup>99</sup> Likewise, there are also steps that would reduce the risk of computer exploitation and attack, many of which are already under way: regularly mapping friendly networks to identify potential vulnerabilities that can be addressed with patches and firewalls; migrating sensitive information onto more secure networks that are difficult to access externally; and supply chain monitoring to avoid “inside” threats to air-gapped networks.<sup>100</sup>

Although defensive measures are undoubtedly necessary, particularly because the space and cyberspace domains are generally considered to be offense dominant, retaliatory options could become increasingly important over time.<sup>101</sup> At present, the United States is far more dependent on satellites and information technology systems than China. Yet this asymmetry is likely to wane, particularly as the PLA continues to develop the complex C4ISR systems necessary to hold at risk both fixed and mobile targets at progressively greater distances. If the PLA’s dependence on space and cyberspace grows, so will its vulnerability to counter-C4ISR attacks, whether they are symmetrical (such as the prospect of offensive cyberwarfare operations in retaliation for network intrusions) or asymmetrical (such as the use of penetrating airborne strike assets to target ground-based ASAT weapons).

## Conclusion

Despite a spirited debate, deep engagers and offshore balancers actually share an optimistic view of U.S. military power.<sup>102</sup> It is not, however, a realistic view. Although the United States is likely to remain the only nation that can project force globally, at least for some time, both sides have overemphasized its

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99. *Ibid.*, pp. 29–30; and Robert S. Dudley, “Game Changers in Space,” *Air Force Magazine*, Vol. 95, No. 10 (October 2012), pp. 49–53. The U.S. Air Force recently experimented with a military payload on a commercial satellite, and is exploring additional hosted payload options for future satellite launches. See Geoff Fein, “The U.S. Air Force Seeks Space on Future Commercial Satellite Payloads,” *Jane’s International Defence Review*, October 9, 2013.

100. Martin C. Libicki, *Cyberdeterrence and Cyberwar* (Santa Monica, Calif.: RAND, 2009), chap. 8.

101. On the offense-dominant character of space and cyberspace, see, respectively, Forrest E. Morgan, *Deterrence and First-Strike Stability in Space: A Preliminary Assessment* (Santa Monica, Calif.: RAND, 2010), p. 2; and William J. Lynn III, “Defending a New Domain: The Pentagon’s Cyber Strategy,” *Foreign Affairs*, Vol. 89, No. 5 (September/October 2010), p. 99.

102. Most recently, see Campbell Craig; Benjamin H. Friedman, Brendan Rittenhouse Green, and Justin Logan; and Stephen G. Brooks, G. John Ikenberry, and William C. Wohlforth, “Correspondence: Debating American Engagement: The Future of U.S. Grand Strategy,” *International Security*, Vol. 38, No. 2 (Fall 2013), pp. 181–199.

unique status and, as a result, have conflated military reach with military effectiveness. Moreover, they have underestimated the potential consequences of the PLA's modernization—in particular, its adoption of an A2/AD strategy and its development of conventional precision-strike capabilities.

Proponents of deep engagement argue that the United States should uphold its security guarantees, because retrenchment could encourage opportunistic aggression and reignite dormant rivalries. Yet the military strategy of forward defense that underpins these commitments is becoming increasingly difficult to sustain in East Asia. Proponents of offshore balancing counter that the United States should rethink its security guarantees, rely on local nations to preserve regional stability, and intervene abroad only when they fail. Yet a military strategy of delayed defense would confront many of the same challenges if intervention in East Asia became unavoidable, because the United States would still need to deploy its forces despite antiaccess threats and conduct operations in air and maritime denial zones. In fact, retrenchment could leave the United States in an even worse position, especially if this approach meant withdrawing its forces from their overseas outposts without considering how to reintroduce them, downsizing its military without preserving capabilities that are most viable against emerging challenges, and forgoing investments that could extend its ability to project power.

At present, the United States still appears committed to deep engagement and forward defense. Not only is it “rebalancing” its attention and resources to the Asia-Pacific region in response to China's rise, but it is also developing an AirSea Battle concept for joint operations in nonpermissive environments.<sup>103</sup> Nevertheless, whether it intends to uphold the status quo when threats emerge or adopt a wait-and-see approach to regional conflicts, it will need to emphasize more survivable and effective surveillance-and-strike platforms, increase the resilience of its forward bases, and mitigate its vulnerabilities in space and cyberspace. Given the complexity of military technology in the information age and the long lead times associated with designing, constructing, and fielding modern weapons systems, it should also prioritize these efforts now rather than defer them to the future.

At present, the Pentagon's record in these areas is mixed. Although many officials have recognized the need for capabilities such as stealthy unmanned aerial vehicles that can operate from carrier flight decks, SSNs with greater

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103. Adm. Jonathan W. Greenert and Gen. Norton A. Schwartz, “Air-Sea Battle,” *American Interest*, February 20, 2012; Adm. Jonathan Greenert and Gen. Mark Welsh, “Breaking the Kill Chain,” *Foreign Policy*, May 16, 2013; and Air-Sea Battle Office, “Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges” (Washington, D.C.: Department of Defense, May 2013).

payload capacity, directed energy weapons to defend bases from air and missile attacks, and a more distributed satellite architecture, progress has been limited for a variety of reasons, from institutional resistance to funding constraints. The latter issue, in particular, could be a major impediment over the next decade, as the Department of Defense confronts another several hundred billion dollars in legally mandated reductions to its projected budgets. In this fiscal environment, where bureaucratic competitions over resources are especially intense and new investments may need to be offset with cuts elsewhere, positive steps that have been taken might be jeopardized, while the barriers to developing new capabilities could be particularly high. Nevertheless, the areas highlighted above, though hardly exhaustive, are perhaps some of the best ways to help the United States manage the military rise of China.