Irreplaceable U.S. Navy Aircraft Carriers

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When ADM Jonathan Greenert assumed office in September 2011 as the 30th Chief of Naval Operations (CNO), he issued “Sailing Directions” that included three tenets to guide how the U.S. Navy would organize, train, and equip its future force. “Warfighting First, Operate Forward, and Be Ready” offer a lens through which we should view important operational and budgetary decisions facing our service in both the near and long term.

Since day one of CNO Greenert’s tenure – amidst prospects of diminishing defense budgets - the U.S. Navy has been grappling with the challenge of maintaining sufficient core warfighting capacity and capability, concepts for ensuring the Navy remains forward to strategically influence global events while maintaining its readiness to respond on demand. For the aviation arm of the Navy, executing the “Operate Forward” tenet is central to who we are as a force supporting the defense strategic guidance outlined in “Sustaining Global Leadership: Priorities For 21st Century Defense.”

To sustain global leadership and provide strategic influence, we must “be there.” To “be there” we must have sufficient capacity of ships that can strategically influence. To be effective we must deploy credible capability that is fully appreciated by any potential adversary. As we deal with declining budgets, there will be pressure to pursue a strategy suggested by some critics (who are mostly focused on near term cost and perceived vulnerability) to build a U.S. Navy centered around the divestiture of some big-deck, nuclear powered aircraft carriers (CVNs) and convert the “savings” into some quantity of smaller surface combatants and L-class amphibious ships. In theory, this strategy would increase the presence density of U.S. naval forces and meet the capacity demands outlined in current defense strategic guidance. But let’s examine this emerging strategy a bit more closely.

Considerations about ship numbers notwithstanding, the qualitative aspect of naval presence is central to any discussion about the ends of naval presence. Numbers alone do not guarantee attainment of the aims of various theories of naval presence – assistance, cooperation, assurance, influence, persuasion, deterrence, compellence, or coercion. The subtext following CNO Greenert’s “Operate Forward” tenet states, “Provide offshore options to deter, influence and win in an era of uncertainty.” Devolving the qualitative value of naval presence afforded by a CVN and her embarked air wing into the quantitative value of a larger number of smaller surface combatants for the same level of procurement and supporting investment neglects the fundamental consideration of the purpose of naval presence: deter, influence and win in uncertainty.
There are a number of navies around the globe that can sustain a naval presence force consisting of smaller surface combatants, but none that can achieve the higher ends of global naval presence like the U.S. Navy. What clearly distinguishes the U.S. Navy from the rest of the world is the nuclear powered aircraft carrier AND its very effective (and becoming more so) embarked carrier air wing (CVW). But it’s more than this “hardware.” It’s the adaptability and flexibility of this combat proven team that throughout the past 70 years has evolved and turned inside potential adversary capabilities. Time and time again the innovative and evolutionary character of naval aviation has proven its value to deter…or substantively and decisively contribute…to major conflict around the globe, protect commerce and free trade and ultimately contribute to the security of our nation.

Smaller fleets around the globe are relatively limited in the effects that they can deliver at sea and ashore. Naval gunfire has a distinguished history of delivering naval effects ashore, and the revolution in precision strike weapons such as the Tomahawk Land Attack Missile (TLAM) has increased the range, precision, and explosive yield of those kinetic effects. However, these are principally kinetic effects, limited to what we call the “right side of the kill chain.” An aircraft carrier and, by extension, its embarked air wing, has the capability to operate and influence across the full spectrum of warfare including the electromagnetic spectrum and the non-kinetic, or “left side of the kill chain.” Additionally, an air wing operating from a nuclear powered aircraft is capable of transcending the air-land boundary with high-end effects (precision strike), mid-level effects (non-kinetic shows of force) and lower-end but strategically significant effects (security cooperation, or humanitarian assistance/disaster relief). In the end, the combination of the CVN/CVW is the only maritime force anywhere in the world capable of delivering effects along the entire spectrum of naval presence, from assistance to coercion, operating forward, presence posture, persistent and with the ability to rapidly transition into large-scale major combat operations if required. Emerging and re-emerging navies around the world understand this. That’s why those aspiring to extend their influence are building aircraft carriers.

As the Department of Defense considers future force design it must consider that in many scenarios, the U.S. can employ naval presence, centered on a nuclear powered aircraft carrier and its deploying strike group, to forgo a large footprint ashore while taking full geo-political advantage of using international air and sea space, without requiring over flight or basing rights. Affordability as the central tenet in the big-deck carrier critic’s argument fails to consider the cost avoidance value of these marvels of power, efficiency and adaptability. The dollar cost of the carrier is a bargain and the political advantages are overwhelming especially for a war weary nation looking to avoid protracted commitments in foreign lands.

But the nation is also struggling to repair its fiscal house and the aircraft carrier is arguably the most complicated and technologically advanced weapon system in the history of warfare. These ships are, without a doubt, expensive to build when compared to other ship programs. But if one views that investment through the lens of a 50-year service life (which, by the way is how long our CVNs are designed to last) that includes warfighting upgrades, modernization and upkeep, they become a pretty good return on nation’s investment. Consider the legendary 51-year history of the recently retired USS ENTERPRISE (CVN 65). Designed in and for a different age, “Big E” was combat-ready and credible during her first deployment in 1962 during
the Cuban Missile Crisis just as she was combat-ready and credible during her deployment in support of operations in Afghanistan in 2012.

Today, the U.S. Navy is building the FORD class of aircraft carriers. Many recent articles quote values ranging from $13-$15B as the cost to build the first ship of the class, USS GERALD R. FORD (CVN 78). Those cost figures, however, include not only the cost to build the first of ship of the class, but also all the design and development costs for the entire FORD class - a class of ship that will be in service for the next 94 years. Factoring the design and development cost of the entire class into the price of the first ship of the class is analogous to claiming that the first Apple iPhone cost $150M or the first Toyota Prius cost more than $1B. When the design and development costs are removed from the inflated “shock value” cost of CVN 78 (see above) to make a true comparison to our current NIMITZ class carriers, CVN 78 is in real terms only 18% more expensive than the last NIMITZ class built - despite all the challenges associated with building the first-in-class of the most technologically advanced ship ever built. Continuing with the iPhone or Prius analogy, the design and development investment in the FORD class will deliver a product that is more capable, has lower life cycle costs than its predecessors ($4B less than our NIMITZ class carrier…that’s real money), and return 94 years of service on that investment.

Even in light of that return-on-investment timeline, affordability remains a key consideration and the Navy is leveraging the learning on CVN 78 to further reduce costs on USS JOHN F. KENNEDY (CVN 79). In real terms, CVN 79 will cost more than $1B less to build than CVN 78, and will require fewer man-hours to build than the last NIMITZ class carrier. In the end, the Navy is building one FORD class carrier every 5 years, which represents about 0.4% of the defense budget during that time frame. If we take a long strategic view, and keep ENTERPRISE in mind as a recent fact not hyperbole, that is pretty good return on our investment.

Finally, some critics have questioned whether an aircraft carrier can remain relevant in tomorrow’s threat environment. The answer to that question lies not only with the aircraft carrier, but…importantly…also with her embarked air wing. USS MIDWAY (CV 41) was commissioned in 1945, with an air wing consisting of Corsairs and Avengers. During her final combat cruise in Operation DESERT STORM in 1991, her air wing was comprised of Intruders, Hornets, Prowlers, and Hawkeyes. Likewise, the air wing complement on FORD class carriers at the end of their service life, we postulate, will be radically different than the air wing CVN 78 will carry at the time of her commissioning. Unlike other classes of ships, the aircraft carrier does not need to be retired when its primary weapons system becomes obsolete. Similarly, defensive systems are more easily upgraded aboard an aircraft carrier than any other ship; USS MIDWAY’s 1945 armament of 5 inch guns had been replaced by Sea Sparrow and the Phalanx Close In Weapon System (CIWS) by 1991. The Evolved Sea Sparrow Missile, Rolling Airframe Missile, and CIWS on the FORD at her commissioning will likely be replaced by entirely new defensive systems that we can’t even imagine today by the time of her retirement in 2065 – and her two nuclear reactors and unprecedented electrical generation power will provide plenty of “juice” to integrate directed energy weapons of the future. CNO Greenert has used the USS ENTERPRISE (CVN 65) example as a prime example in his “Payloads Over Platforms” theme for the future design of our Navy, and it was a testament to the proven track record of strategic
adaptability of the aircraft carrier. vi This record of strategic adaptability is proof-positive why we ought never to cede battlespace to any potential adversary.

For more than 70 years, the unmatched range, speed, endurance, and flexibility of the U.S. Navy’s aircraft carrier strike force has presented the U.S. with global freedom of action while operating, even when contested, from international waters and air domains. Nuclear powered aircraft carriers and their embarked air wings represent the independent, insoluble truth that the U.S. is a key guarantor of peace and stability around the world. Having the ability to operate without a “permission slip” for basing and over flight access while generating the range of effects necessary to deter potential adversaries is more than just a symbol of power. It is the essence of power.

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iv This list of the ends of various theories of naval presence and diplomacy was garnered from J.J. Widen, “Naval Diplomacy – A Theoretical Approach” Diplomacy & Statecraft, 22:4, 715–733.
v Greenert, “CNO’s Sailing Directions”
v Greenert, “Payloads Over Platforms”, Proceedings,