

## CVX: New Carrier Strategy Takes Shape

The CVX program passed a major milestone on 25 September 1998 when the Defense Acquisition Board met to review the CVX Analysis of Alternatives (AOA) and approved the Navy's plan to build a new large nuclear-powered carrier. The acquisition process requires that the assumptions and options of every new program are reexamined in a formal AOA. CNA leads the CVX AOA. Based on previous work in the AOA, OSD had agreed to eliminate small carriers and carriers designed to operate only STOVL aircraft. This year we focused on two issues:

- Mid-size versus large carriers. Although the fleet instinctively recognizes the value of large carriers, OSD's attitude was "show me." Despite this initial skepticism, in the end two findings contributed to unanimous agreement in favor of a large-deck carrier:
  - A 75-plane carrier costs 8 percent more to build and operate than a 55-plane carrier, but generates roughly 100 percent more strike sorties.
  - A large deck is valuable even in circumstances where the Navy cannot afford to maintain an operational aircraft for every spot.
- Nuclear versus gas turbine propulsion. As expected, the propulsion issue generated considerable debate, and it proved easier to quantify the costs than the benefits. But the cost data alone were fairly revealing:
  - A nuclear carrier costs 11½ percent more than a comparable gas turbine carrier, not including any impact on the nuclear industrial base or greater than expected increases in the cost of oil. When Navy estimates of these factors are included, the difference is 8 to 10 percent.

- More important, major reductions in personnel and maintenance costs can be achieved in a new nuclear design, resulting in life-cycle cost savings of nearly 20 percent compared with a repeat of CVN-76.

In light of the modest cost premium, endorsement by the unified CINCs, the quantifiable advantages of nuclear power in crisis response, and its proven track record versus the unknowns and risks of gas turbines, the DAB agreed that the warfighting advantages of nuclear power justify the additional cost and directed the Navy to proceed with development of a new nuclear propulsion plant for CVX.

(Dr. David Perin, (703) 824-2309)

## Navy environmental program

The Navy's use of hazardous materials in its industrial activities is governed by three requirements: meet a mandated 50-percent reduction in its release of toxic chemicals to the environment by 1999 (the Toxic Release Inventory, or TRI); meet new Clean Air Act requirements with respect to its releases of hazardous air pollutants (HAPs); and reduce by 50 percent the amount of hazardous waste sent for disposal. CNA has assessed the Navy's activities in all three areas. We monitored the Navy's TRI, recommended focus areas for reductions, and showed that future reduction targets could be costly and difficult to meet. In the case of HAPs, we helped the Navy ensure that its inventories are accurate and consistent—a critical part of meeting Clean Air Act regulatory requirements. And, for all three areas, we examined the degree to which substantial past and ongoing investments in pollution prevention technology have helped or can help with meeting these requirements.

(Dr. Paul Speer, (703) 824-2292)

## Project Asia

In the past few years, CNA has undertaken several studies of security issues in the Asia-Pacific region. Recently we began Project Asia, a two-year effort to complement ongoing work with broader analyses of Asia policy and security issues of particular interest to senior decision-makers. Project Asia will produce annual assessments of Asia's security environment, profiles of selected countries, and specific products focused on China. We will also conduct roundtables, conferences, and the like, engaging the broader audience of Asia experts in academe and at other think tanks and institutions in Washington and elsewhere. We hope Project Asia will help us realize our goal of becoming a center of excellence on Asia-Pacific by expanding our reputation and influence in the area of Asia-Pacific security. (RADM Mike McDevitt, (Ret.), (703) 824-2614)

## Future uses of non-lethal weapons

The Marine Corps is interested in the applicability of non-lethal weapons to operations in which Marine Corps forces may be engaged. As part of his efforts to address this issue, the Deputy Chief of Staff for Plans, Policies, and Operations asked CNA to examine the future environments in which non-lethal weapons might be employed and to identify the non-lethal capabilities needed in those environments. We used a scenario-based planning model to derive four alternative future worlds in which the Marine Corps might operate. We examined each of these worlds in relation to the types of military operations likely to characterize them and the role that non-lethal weapons could play in those operations. We found that:

- Non-lethal weapons can support Marine Corps forces in peacetime operations, small-scale contingencies, and major theater wars.
- Non-lethal weapons can contribute to a wider range of warfighting functions in major theater wars than in any other type of U.S. involvement, but are also highly

applicable to the four *counters*—counter-narcotics, counterterrorism, counterproliferation, and counterinsurgency.

- Non-lethal weapons can contribute to all six Marine Corps warfighting functions. Specific non-lethal weapons that incapacitate individuals are applicable across the spectrum of conflict and play an especially important role in force protection. Non-lethal weapons that deny access to individuals and vehicles are particularly applicable to maneuver; those that can disable or neutralize equipment support intelligence; and those that clear facilities of personnel support the command-and-control function.

All in all, non-lethal weapons are an essential supplement to overall Marine Corps capabilities in meeting the challenges of future operating environments.

(Mr. John Nelson, (703) 824-2262)

## TRICARE

Legislation specifically states that the objectives of TRICARE, the military medicine managed-care program, are to increase access to and quality of medical care while remaining cost neutral. Modeled on medical plans offered in the private sector, TRICARE offers beneficiaries three options: enroll in an HMO program, the least expensive option; use a network of designated civilian providers or doctors not in the network at a higher cost; or receive care under the original CHAMPUS system, a traditional indemnity program and the most expensive TRICARE option.

Congress requires the Secretary of Defense's Health Affairs office to provide an annual independent evaluation of TRICARE. Two years ago, Health Affairs selected CNA to conduct these evaluations. To date, we have examined the performance of TRICARE in Region 11 (Washington, Oregon, and northern Idaho), the only region operating under the program long enough to provide a mature picture. Our find-

ings show that, in its initial phases, TRICARE has met the challenges of improving access and maintaining quality while remaining cost neutral. We have begun the next evaluation, which will cover six additional regions and, therefore, will provide a global assessment of TRICARE.

(Dr. Pete Stoloff, (703) 824-2244)

### Aging the force

Over the past few years, the senior leaders in the Navy have asked, “Why can’t the Navy look like the Air Force?” This question does not imply a change to light blue uniforms, but rather an interest in increasing the experience level of the average sailor to match that of the average airman. The desire for increased experience comes from the recognition that experience matters in fighting capability and readiness. Increasing the average experience would also reduce personnel turnover, recruiting costs, and training and moving budgets. But the downside of increased experience is its cost. To increase its average experience, the Navy must increase retention—an end that can be bought by several means: reenlistment bonuses or special pay (e.g., sea pay), additional advancements, or an across-the-board pay increase. Further, because pay tables are linked to seniority, higher seniority also means higher pay and benefits.

Our study concluded that the Navy can increase the experience level of the average sailor only if it is willing to pay more for its people. Our analysis showed that the cost of an across-the-board increase in experience is greater than the estimated savings even in the most optimistic valuation for the increased readiness of a more senior force. However, we found that increased experience saves money in a small number of ratings—in particular, those ratings with high recruiting and training costs and low current retention. In these cases, selective reenlistment bonuses are an efficient means to increased experience.

(Dr. Henry Griffis, (703) 824-2208)

### FOTC

The Force Over-the-Horizon Coordinator (FOTC) is charged with ensuring that a complete and consistent surface and sub-surface picture is disseminated to the entire battle force. FOTC comprises an entire system for disseminating the picture to the battle force: the watch sections, the procedures they follow, the computer systems they use to process the data, and the communications systems the computers use to exchange data. Ideally, every ship in a battle force will hold the same picture. In practice, ships often hold pictures that differ in both completeness (not all tracks appear on all ships) and consistency (the same track displayed on two ships differs, for example, in position, course, speed, or ID).

At the request of Commander, Carrier Group Four, CNA examined FOTC performance and suggested ways to improve it. We developed software tools to collect data as it moved from computer to computer via various communications links. We collected the data during exercises and deployments of several battle groups, and also observed FOTC operations during two years’ worth of COMPTUEX exercises. As a result, we identified complex interaction problems between the computers and the communications systems—for example, interactions between the buffering and queuing processes in the JMCIS computer system and the OTCIXS communication systems that delayed transmissions. Some of our recommendations for dealing with these problems seem counter-intuitive—for example, to get better data throughput, increase the frequency with which FOTC broadcasts contact data. But at-sea tests have proved the recommended fixes effective. Recommendations for changes to FOTC techniques and procedures are being incorporated by Carrier Group Four and TACTRAGRULANT into their training programs; suggestions for fixes to the underlying computer and communications systems are finding a receptive audience at SPAWAR.

(Mr. John Bentrup, (703) 824-2579)

## Competitive sourcing

We continue to support Navy and Defense Department efforts to use competition to reduce infrastructure costs and shift the savings into modernization. In examining the sustainment of savings after the initial competition, we found that recompetitions, which usually occur three to five years after the first competition, produced additional savings. Specifically, the initial savings were 32 percent relative to the initial in-house cost. After the first recompetition, the savings increased to 45 percent of the initial in-house cost. In cases of a second recompetition, there seemed to be even more savings. Whether the scale or scope of the individual contracts changed is difficult to determine, but clearly the data counter those who believe that savings evaporate over time. This suggests that long-term savings are higher than previously estimated.

We are also helping our sponsors deal with how to bundle activities into a single contract. We previously found that the percent saved increased with the size of the contract. Breaking down the data further than we had previously, we find that, in most cases, the percent saved levels off at some point. Increasing the size of contracts beyond current practices is still worthwhile, but there are clear limits. We also verified our previous finding that combining different activities into one competition produces fewer savings than the competition of one activity of comparable size. This suggests that combining common functions across bases may be the best approach to increasing the size of competitions. This work is preliminary and we will continue to examine different facets of this issue.

(Dr. Sam Kleinman, (703) 824-2473)

## 1998 Annual Conference

The government traditionally lags behind the private sector in adopting new business practices that improve productivity and reduce costs. Long-standing cultural and legislative barriers and the lack of competitive pressure have delayed the *revolution in business affairs* that has markedly improved the efficiency of U.S. private businesses. Many people are not aware of the successes that have been achieved and doubt the applicability of new business practices to government activities.

The theme of CNA's 1998 conference is *The Revolution in Business Affairs: Realizing the Potential*. We've designed the conference to help bridge the awareness gap by publicizing successful processes and techniques. Our goal is to give participants a conceptual framework for dealing with the impediments to improved business practices and to show how determined leadership can produce results. The conference will focus on:

- Explanations of relevant current policies by high-level Executive Branch officials
- Examples of the successful use of formal and informal competition, including public-private competitions
- Selected examples of successful reengineering of government business processes
- Insights from the congressional and academic communities.

This year's conference will be held in Arlington, Virginia on 1 and 2 December. For more information on the conference, please visit our website at [www.cna.org/conference](http://www.cna.org/conference).