CBO TESTIMONY

Statement of
Cindy Williams
Assistant Director
National Security Division
Congressional Budget Office

on
Attack Submarine Programs

before the
Subcommittee on Seapower
Committee on Armed Services
United States Senate

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Mr. Chairman and Members of the Subcommittee, I am pleased to be here today to discuss issues related to the Administration's plan for producing nuclear attack submarines.

Attack submarine programs are a significant portion of the Navy's overall acquisition plan: in its 1996 request, the Administration has allocated $2.8 billion for them. That sum includes $1,507 million to complete the funding for a third Seawolf submarine, $704 million in advanced procurement funding to support procurement of the first New Attack Submarine (NAS) in 1998, $455 million in research and development funding for the NAS, and $127 million in technology programs supporting the Seawolf program.

My testimony today presents the Congressional Budget Office's (CBO's) preliminary findings from an ongoing study of nuclear-capable shipbuilders, which we have undertaken at the request of Senator McCain. That effort is focused on evaluating the potential long-term advantages and disadvantages, as well as the near-term costs and savings, of consolidating all nuclear shipbuilding in one yard.

Two shipyards currently produce nuclear-powered vessels: General Dynamics' Electric Boat Division, which specializes in submarines, and Tenneco's Newport News Shipbuilding, which builds both submarines and aircraft carriers. The Department of Defense (DoD) has chosen Electric Boat to design and build the first NAS and plans to designate the shipyard to construct more of the ships. It has also

chosen to complete a third Seawolf submarine at Electric Boat to ensure that the shipyard continues operating until production of the first NAS begins.

Newport News Shipbuilding has recently petitioned the Congress to mandate that procurement of the NAS be based on "full and open competition." It claims that such a competition would reveal it to be the lower-cost builder. In support of its claim, Newport News has provided an analysis indicating savings of almost $2 billion for the first five ships and $7 billion to $10 billion over the life of the program. The Navy, however, claims that savings would be much less--$1.3 billion through 2012. Furthermore, it asserts that opening up the NAS program for competition at this point would lead to significant delays and, were Newport News to win the competition, the likely prospect that submarine production would be reduced to a single yard.

My testimony today will focus on our preliminary findings in three areas:

- The need for the third Seawolf submarine that DoD has requested in its fiscal year 1996 budget and the budgetary savings that would result if it was not approved;

- The risks and potential for savings that would be associated with consolidating all nuclear ship construction in one yard; and

- The gains and costs from holding a competition or a series of competitions for the New Attack Submarine program.

CANCELING THE SEAWOLF

With the reduced threat from Russian submarines in the post-Cold War world, DoD plans to reduce its force of submarines from 84 in 1995 to between 45 and 55 by the end of the decade and beyond. To reduce the force, the Navy is currently retiring submarines before the end of their service lives. Even with those retirements, the Navy could meet DoD's force goal without producing submarines again until at least 2003. Why does the third Seawolf need to be authorized in 1996? The Navy argues that it supports military requirements and helps maintain the industrial base for producing submarines.

Military Value of the Third Seawolf

In addition to DoD's general force goal of 45 to 55 submarines, the Joint Chiefs of Staff (JCS) have stipulated that by 2012, 10 to 12 of those ships need to be as quiet as the Seawolf--that is, either Seawolf or NAS class vessels. Of course, other attributes, such as the quantity and quality of weapons carried and the quality of a

submarine's sensors, combat system, and crew, make important contributions to its overall combat power. But the Navy has always regarded a submarine's level of quietness as an important factor in keeping it hidden from the enemy. A few of the latest Russian attack submarines are quieter at certain speeds than the Navy's existing Los Angeles (688I) class ships, and the Navy argues that it needs submarines that are quieter than the Russian ships. Both the Seawolf and the NAS--equally quiet ships--can fulfill such requirements.

Although the third Seawolf has military value and supports DoD's military requirements, the ship is not critical to fulfill them. Assuming the Navy will achieve a minimum production rate of 1.5 NASs per year beginning in 2002, it will be able to meet both the general force goal of 45 to 55 ships and the JCS requirement for very quiet submarines without buying the third Seawolf.

Effect on the Industrial Base

Although it has argued that the third Seawolf does have military value, DoD has indicated that it needs to build the ship now primarily to shore up the industrial base to produce submarines in the future. The segment of the industrial base helped most from completing the ship is submarine production at the shipyard level. DoD

designated Electric Boat to build the third Seawolf to ensure that the shipyard would survive until the NAS is authorized for production in fiscal year 1998.

Apart from its benefits to the prime contractor, completing the third Seawolf submarine does little to help maintain the industrial base for the design of submarines or for the supply of nuclear submarine components. Because the Seawolf class of ships has already been designed, building the third ship no longer requires the skills of numerous design engineers. Electric Boat's designers have already begun working on the design for the NAS. Similarly, because the nuclear reactor for the ship is already being built with advance procurement funds, completing the vessel does little for vendors that produce nuclear components for ships and submarines. Those vendors will benefit more from the authorization of the CVN-76 aircraft carrier last year and the NAS--wherever it is produced--than they will from producing the third Seawolf.

Buying the third Seawolf will support suppliers of certain nonnuclear components, but that may not be necessary. According to a study on the submarine industrial base for DoD conducted by RAND, most vendors supplying nonnuclear components could remain viable suppliers even with a gap of several years in submarine starts.

Savings from Canceling the Third Seawolf

The Navy has requested $1.5 billion in 1996 to complete the third Seawolf. The Congress has already appropriated about $920 million to fund advance procurement of the nuclear reactor, combat system, and other components. (As of March 1995, the Navy had spent $390 million of the $920 million, leaving $530 million unspent.) Those previous appropriations bring the total cost of the ship to about $2.4 billion.

Savings in 1996 from canceling the third Seawolf would be $1.5 billion, an amount that would be offset by potential added costs of $500 million over the next five years (see Table 1). The offsetting costs would include those of shutting down production now, restarting dormant facilities, and retraining the work force when the

TABLE 1. SAVINGS FROM CANCELING THE THIRD SEAWOLF (In billions of dollars)

Total Cost of the Submarine	2.4
Amount Appropriated in Previous Years	-0.9[a]
Amount Requested in 1996	1.5
Reconstitution Expenses	-0.5
CBO Estimate of Net Savings	1.0

SOURCE: Congressional Budget Office based on data from the Department of Defense and RAND.

a. Unspent prior appropriations of $350 million might be used to pay any costs for terminating contracts or expenses for reconstituting production. In its analysis, CBO did not assume that occurred because the funds might be spent before the expenses come due.

NAS is ready to begin production, and the impact on existing contracts. Thus, the net savings from canceling the third Seawolf would be about $1 billion.

Some or all of the $500 million in future offsetting costs and any costs for terminating contracts on the third Seawolf might be paid from the $530 million in unspent appropriations from the previous year. In this analysis, CBO did not assume that occurred, however, because those prior year funds could be spent before such costs come due.

CONSOLIDATING PRODUCTION OF NUCLEAR-POWERED SHIPS AT ONE SHIPYARD

Consolidating the production of nuclear-powered ships at a single shipyard would also be likely to generate long-term savings. Because Newport News Shipbuilding has the facilities to produce both aircraft carriers and submarines, whereas Electric Boat builds only submarines, the only realistic plan for consolidation would be at the former. Newport News has given the Congress its own estimate of such savings from now until the year 2012. That estimate comes to $7.6 billion. The Navy agrees that some savings during that period would occur, but it believes such savings would be only $1.3 billion. (Both estimates include canceling the third Seawolf.) The Navy

also argues that the risks of cutting back to a single shipyard outweigh the likely savings.

Long-Term Savings

Consolidating production at Newport News would eliminate excess shipbuilding capacity at Electric Boat, which has no commercial business to help defray the costs to the government of maintaining expensive facilities and certifications to produce nuclear-powered ships. Once consolidation was completed, the Navy would need to support the fixed costs of only one private-sector, nuclear-capable shipyard--the larger Newport News. Given the Navy's planned low rates of construction for submarines and aircraft carriers, those economies of scale are likely to become important.

In addition, Newport News could achieve efficiencies by shifting its workforce between carrier and submarine work. Building military ships to strict government specifications requires a skilled workforce. According to the RAND study on the submarine industrial base, most of the skills required to build a submarine are the same as those needed to produce or overhaul a carrier. Over the longer term, with the low rates of carrier and submarine production, a flexible workforce at one shipyard that could shift between carrier and submarine production might help retain

a stable, skilled workforce more effectively and at less cost than separate workforces for carriers and submarines.

Also, if the third Seawolf is canceled and the construction of the NAS is delayed, reconstituting production at Newport News is likely to be less expensive than doing so at Electric Boat. If the ship is canceled in 1996, submarine production would have to be shut down and reconstituted later when NAS production begins. Reconstitution in 1998 would cost about the same at Newport News and Electric Boat, but the larger yard's cost advantage would increase if reconstitution was delayed.

The cost advantage at Newport News would result from its ability to shift its workforce from the CVN-76 aircraft carrier to the NAS. (The RAND study states that the costs of finding, rehiring, and retraining a skilled workforce dwarf all other costs of reconstituting submarine production.) Although current Navy plans call for NAS production to begin in 1998, delays in programs of this size are not uncommon. Exploring and defining the concept for the basic design of the ship took a year longer than planned and thus might affect the schedule for production. In addition, an internal Navy memorandum in the fall of 1994 states that the Chief of Naval Operations was willing to delay production of the NAS to fund programs of higher priority, which might indicate his willingness to do so in the future. Thus, reconstituting submarine production might well be delayed.

Short-Term Costs

Although consolidating construction at Newport News would save money over the long term, it might entail some short-term costs. The Navy and Newport News disagree about the level of those costs. Electric Boat is designing the NAS to be produced in its own facility. The Navy estimates that it would cost about $200 million and take two to four years for Electric Boat to redesign the ship so that it could be produced at Newport News. Alternatively, the president of Newport News claims that such costs would be negligible because the submarine is still in the early stages of design, and modern design tools (computer-aided design systems) make redesign much easier and cheaper. Both shipyards have such tools. In any case, in its final report, CBO will analyze that issue more thoroughly.

Maintaining the Industrial Base

The Navy is concerned that any significant delay in the NAS program could endanger the industrial base for suppliers of submarine components. If redesign caused a significant delay, the Navy might need to take some action to ensure the survival of those vendors. According to RAND, it might keep them in business by funding items before the items were needed, paying them to build prototypes, or using them to revitalize, modernize, or replace equipment on existing submarines. According to the

General Accounting Office, if key vendors went out of business, the cost and time to reconstitute production could be reduced by having the government or the shipbuilder take over production, as Newport News did with torpedo tubes.

Risks of Consolidating Production

The Navy argues that the risks imposed by consolidating to a single nuclear-capable shipyard outweigh the potential cost savings. It maintains that two yards to build submarines are needed to hedge against the possibility of losing a shipyard (for example, from a natural disaster) or to increase rates of production if a Russian submarine threat increases dramatically. If a second yard--Electric Boat--was needed and had already closed, the Navy argues that it would be difficult and time-consuming to get it recertified to build nuclear-powered ships.

Not least, the Navy is reluctant to lose Electric Boat because it regards it as the preeminent yard in the United States for nuclear submarine design and construction technology. In particular, it notes that the shipyard designed the nuclear propulsion plants of 18 of the last 19 classes of submarines and provides design, engineering, production, and fleet support for the Seawolf and the Trident ballistic missile submarine programs.

But, in fact, only one yard--Newport News--produces nuclear-powered aircraft carriers. Therefore, the Navy has no extra capacity to build carriers in the event of a natural disaster or even a nuclear mishap. That situation existed even during the Cold War when the threat was greater. Arguably, with the decline of the threat from Russian submarines in the post Cold-War world, producing submarines might be less critical than producing carriers, given the shift in U.S. naval strategy to projecting power ashore in coastal areas and the need for weapon systems that provide maximum capability in those areas. Therefore, one shipyard capable of producing carriers and submarines might now be sufficient.

More important, Newport News has a maximum capacity to build at least four submarines per year. In the long term, assuming that the average expected life of a submarine is 30 years, the capacity to build four submarines a year could support a steady-state force of 120 attack submarines--a fleet exceeding that of the later Cold War years (a maximum of about 100 ships). Thus, the capacity to build four submarines a year would meet most plausible scenarios postulating a resurgent submarine threat.

Finally, although Electric Boat designed the power plants for 18 of the last 19 classes of submarines, Newport News designed the power plant of the modern Los Angeles (688) class submarine that is still in production. If Electric Boat's design

capability is a major reason the Navy continues to operate the shipyard, perhaps a more economical solution is to retain that function and close the production facilities.

CONSOLIDATION VERSUS COMPETITION

According to the Navy, another risk of consolidating production at one shipyard is that it might eliminate the possibility of future competition to build submarines. Currently, however, no competition exists to build submarines because the Navy plans to allocate the design and production to Electric Boat for the foreseeable future. The Navy maintains that its plan to allocate production of the third Seawolf and the design and production of at least the first NAS vessels to Electric Boat was necessary. By way of explanation, it claims that building submarines at an average rate below two per year initially would not sustain competition between two shipyards. But sometime after the turn of the century, the Navy hopes to increase production to two ships per year; it argues that a competition might then be held. The potential for future competition, it contends, ensures leverage over Electric Boat to keep the cost of the ships down in the interim.

Newport News maintains, however, that if the Navy continues to designate Electric Boat to build submarines while it builds none, its capacity to produce them will erode. Therefore, in the future, the Navy would continue to incur the fixed costs

of two nuclear-capable shipyards--one capable of producing carriers and one capable of producing submarines--without reaping the cost savings of having two potential suppliers of submarines. Thus, the Navy's current plan might leave it without the possibility of generating competition in the future and the leverage to hold costs down in the interim.

Furthermore, prospects for competitive procurement of submarines either now or in the future are questionable. First, the Navy may never produce submarines at two per year. Even though the NAS is being advertised as a low-cost successor to the Seawolf, the first ship of the class is projected to cost $3.3 billion to procure. That price is about $900 million more than the third Seawolf, which costs about $2.4 billion. Although the cost of the lead ship in any class is greater than follow-on vessels, and the Navy eventually hopes to get the unit cost down to $1.5 billion, it may have difficulty closing such a wide gap. If the Navy cannot reduce unit costs substantially, it may not be able to afford to produce two ships per year.

Second, according to an analysis by the Congressional Research Service (CRS), even if two submarines a year are produced, sustaining competition between the two shipyards may not be realistic. For fiscal years 1994 and 1995, the Navy decided that a production rate of three ships a year would not sustain competition between the two shipyards producing DDG-51 destroyers without risking their

financial health. Therefore, prospects would be limited for competition for submarines at an even lower rate of production.

The CRS analysis also notes that even if competition for submarines could be sustained, the Navy might not necessarily save money. The inefficiencies from splitting the production learning curve between the two shipyards might more than offset the savings from competition. The analysis suggests that to avoid the added expenses of dividing a small purchase of submarines between two shipyards, a winner-take-all competition for multiple ships or the entire NAS purchase could be held. In that instance, a one-time competition, rather than government industrial policy, would decide whether one or two nuclear-capable shipyards remained. In question is whether a shipyard would bid extremely low to win the contract and then raise the price after the losing shipyard left the submarine production business. Also, would the long-term savings from a winner-take-all competition exceed any short-term costs to the government to "level the playing field" between the two shipyards? CBO's ongoing study will analyze that issue quantitatively.

The CRS analysis lists some of the actions that might be needed to make competition more equitable. The Navy might have to fund a Seawolf or some other new submarine construction project in 1996 at Newport News as well as Electric Boat to ensure that Electric Boat did not enjoy an advantage. (Newport News maintains, however, that it could resume submarine production in 1998 if it was given

some submarine overhauls and repair work now performed by the Navy's shipyards.) The analysis suggests that if no new construction project was funded at Newport News, the shipyard's reconstitution costs might have to be considered during the bidding.

In addition, because Electric Boat is designing the NAS to be produced at its facility, the analysis notes that Newport News would have to be allowed to observe or participate in the design process and that the design would have to be modified to permit Newport News to produce it. As noted earlier, the Navy estimates that altering the design would cost about $200 million and delay the NAS program by two to four years. However, Newport News argues that the extra costs and time are negligible.

In short, with competition, the possibility exists that the Navy could spend substantial amounts of money to level the playing field. Whether long-term savings from competition would exceed those amounts is unknown. Also, of course, if the competition was winner-take-all and Newport News won, the Navy would end up with only one shipyard that could produce nuclear-powered ships anyway.

REALLOCATING WORK FROM THE PUBLIC SHIPYARDS

If consolidating production at one shipyard--either by an industrial policy or as a result of competition--was thought to be too risky, both shipyards could be kept open with work reallocated from the four public shipyards that are nuclear capable. Reallocating some submarine overhauls from public to private shipyards would allow the private yards to spread overhead among more contracts, help keep their skilled workforces more efficiently employed, and eliminate excess naval industrial capacity as some of the public yards were reduced or closed.

CONCLUSIONS

Canceling construction of the third Seawolf submarine and consolidating the production of all nuclear-powered ships at Newport News would almost surely generate both near-term and long-term budgetary savings. Canceling the third Seawolf would save about $1.5 billion in 1996, reduced by $500 million in future expenses. The third Seawolf is not needed to meet overall goals for the attack submarine force: the Navy is reducing the number of attack submarines from 84 in 1995 to its force goal of between 45 and 55. Although the Seawolf is an excellent submarine in many respects--it can carry considerably more weapons than a Los Angeles class submarine and achieves new standards in quietness--DoD leaders have

already determined that it is too expensive to buy in quantity. They initiated the NAS program to develop a submarine that is equally quiet, but smaller and cheaper to produce. By 2012, enough of those new submarines will be built to meet the JCS's goal of 10 to 12 very quiet submarines without adding a third Seawolf.

As for consolidating production of nuclear-powered ships in a single shipyard, it would very likely generate long-term savings. However, the amount of savings is in dispute. Newport News estimates that consolidating all construction of nuclear ships at its shipyard would save the government $7.6 billion between now and 2012. The Navy estimates savings at $1.3 billion over that period. (Both estimates assume a third Seawolf is not built.) CBO has not completed its own estimate, but it will probably fall between those two amounts.

The limited number of purchases of nuclear-powered vessels in the Navy's current plan makes consolidation an attractive option from an economic standpoint. Current Navy plans call for producing one aircraft carrier every four years, starting in 2002, after a seven-year gap from the CVN-76 authorized in 1995. Over that same period, the Navy would build the NAS at a rate of no more than two submarines a year. At those low rates of production, paying the overhead costs associated with two separate shipyards is not very economical. A single, larger shipyard would have the advantage of shifting workers between carrier and submarine production as needed.

Allowing both shipyards to continue to compete for submarine contracts appears to be problematic, as long as the Navy plans to acquire the NAS at no more than two a year. Keeping both yards open and active to support a yearly competition might be more expensive than buying submarines from a single yard: it would require the Navy to pay the overhead on two sets of underused facilities and to incur costs to level the playing field between the competitors to ensure a fair competition.

As an alternative strategy, the Navy might be able to conduct a winner-take-all competition for multiple ships or even for the entire NAS program. If won by Newport News, such a competition would have the same effect as directing consolidation. If won by Electric Boat, it could lead to the same result as the Administration's current plan, but with the attendant delays and additional costs associated with mounting a fair and open competition. CBO will address the issue of the potential gains and costs of competition more thoroughly when it issues its study.